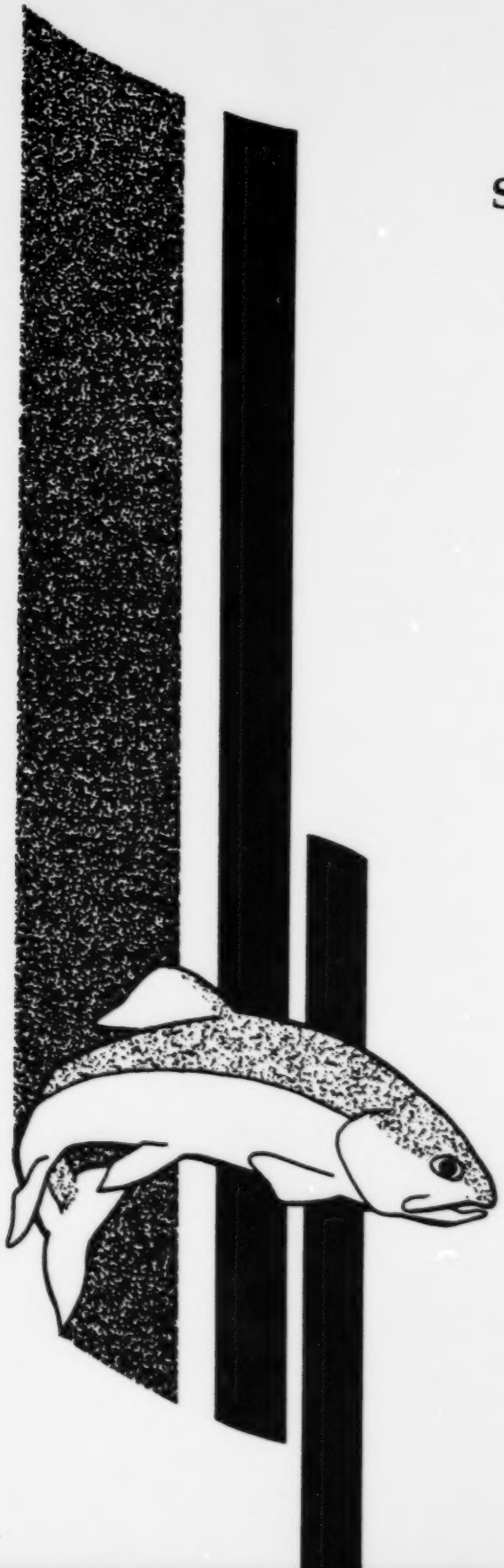

Steelhead Harvest Analysis

1987-88

by

SUSAN J. BILLINGS

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ABSTRACT

Billings, S.J. 1989. Steelhead Harvest Analysis, 1987-88. Fisheries Technical Circular No. 85, 45 p.

Since 1966-67, at the end of the angling licence year, a questionnaire has been sent to a sample of anglers who fished for steelhead in British Columbia. Information was requested on their fishing activity and catch success and incorporated into an annual summary of steelhead sport catch. Over this time there have been considerable changes in licence sales, the number of days spent fishing, catch and release of steelhead, and freshwater angling regulations in B.C. In the 1987-88 season, 31,263 steelhead angling licences were sold, 11% of which were to nonresidents of B.C. Questionnaires were sent to 56% of licencees and a response was received from 55% of those contacted. Of the respondents, 74% reported going steelhead fishing and 60% of these 'active' anglers successfully landed a fish.

The provincial steelhead catch has increased significantly since 1982. In the 1987-88 season, steelhead anglers fished for 258,101 days in the province catching 153,489 fish. Wild steelhead made up the largest component of the catch at 124,348 fish; hatchery catch numbered 29,141 fish. Catch per angler day was 0.62. Provincial catch and effort were down from the previous year's (1986-87) record highs of 188,417 fish and 279,505 days.

The increasing trend in steelhead catch in recent years is a combined result of increased stock abundance, sizeable returns of hatchery fish to some rivers, and repeated captures of released fish. The Chilliwack/Vedder River was, once again, the most heavily fished stream in the province with 54,171 angler days. This river supported more than half of all the steelhead fishing activity in the Lower Mainland.

Reduced possession quotas as well as steelhead release regulations have resulted in a decreased proportion of the steelhead catch being kept. The ratio of fish kept has dropped from 63% in 1970-71 to under 13% in the last four years. Of the active anglers, 32% kept between one and five steelhead and only 2% kept more than five steelhead.

The Chilliwack/Vedder River reported the most fish caught (23,795) followed by Stamp/Somass/Sproat (11,401), Dean (9,505), Cowichan (9,151), Bulkley (7,717), and Skeena (7,707) rivers.

Overall, Vancouver Island reported the highest number of steelhead caught followed by the Skeena Mainland and Lower Mainland areas. Hatchery fish, in 1987-88, comprised 19% of the total provincial catch compared to 27% in the previous two years. The release ratio for hatchery fish averaged 70% compared to 94% for wild fish.

ACKNOWLEDGEMENTS

The author would like to thank P. Haley for assisting in conducting the survey, A. Scholten for coding the questionnaires and L. Wells for preparing the figures.

INTRODUCTION

Since 1966, all anglers fishing for steelhead in the province have been required to purchase a steelhead licence and punchcard in addition to their basic angling licence. This provided an opportunity for fisheries biologists to evaluate the steelhead trout sport fishery by conducting a mailout questionnaire survey of steelhead anglers. The result today is over twenty years of trend information on angling effort and catch success for steelhead streams in the province based on the survey results.

Originally, the Steelhead Questionnaire only asked if the angler fished for steelhead and, if so, how many days were fished and how many steelhead were kept from each stream. Five years later, in the 1970-71 fishing season, information was also requested on the number of steelhead released. The voluntary release of steelhead reported at that time comprised about 40% of the total catch.

Many streams in British Columbia are stocked with hatchery reared fry and smolts as a method of enhancing steelhead populations. The first sizeable returns of hatchery steelhead began showing in the angler's catch in 1980 and the Steelhead Questionnaire was altered once again. Anglers were asked to report the number of wild and hatchery steelhead kept and released for each stream fished. This additional information has been useful in determining the success of the hatchery program as well as monitoring the abundance of wild stocks.

Wild searun trout, which include steelhead and anadromous cutthroat, are low in natural abundance and require careful management to prevent overharvest and ensure adequate spawning. Steelhead trout are harvested by a number of fisheries including a high-seas gillnet fishery, several different inshore commercial fisheries, native food fisheries, and the sport fishery. The number of steelhead caught incidentally in the commercial and native food fisheries is unknown. Efforts are being made, however, by monitoring the commercial landings to determine what runs are most affected and to estimate the number caught. The native food fisheries on the Skeena and Fraser rivers are also being monitored to estimate the steelhead harvest.

Those steelhead which escape the commercial fleet and native food fishery are available to the sport angler. This is presently the only user group whose 'take home' catch can be easily regulated to ensure that enough steelhead survive to spawn. This is also the only user group for which reasonable steelhead catch estimates are currently available.

Monitoring run strength for steelhead stocks is an important activity in fisheries management and is accomplished by catch analysis, snorkel and creel surveys, and juvenile fish abundance surveys. These data guide the regulation of the sport fishery and serve as the basis for negotiations with the federal Department of Fisheries and Oceans and native groups to increase the steelhead escapement.

Surveys of stocks in the late 1970's revealed that many runs of steelhead were declining, particularly in southern British Columbia.

Essential to the management and restoration of steelhead are habitat protection, harvest regulations, fish culture, and habitat improvement. Habitat related activities include the removal of barriers to fish migration; construction of spawning platforms to increase available spawning habitat; placement of boulders or log cover in streams to increase rearing habitat for juvenile fish; and stabilization of stream banks by establishing riparian vegetation, reinforcing with rip-rap, or fencing to eliminate damage caused by livestock.

Fish culture also plays a role in accelerating the recovery of severely depleted wild stocks and in sustaining major sport fisheries. Selected steelhead stocks are reared to fry or smolt size in provincial, federal, and public involvement hatcheries. Fry are released in underseeded areas of streams or above barriers (i.e. waterfalls), thus, maximizing the use of available rearing habitat. Smolts are reared at hatcheries or in floating net pens in lakes where they are fed artificially for one year until a size of about 18 centimetres is reached. Upon release to the river, the smolts migrate to sea returning to spawn in 2 or 3 years. Returning hatchery adults are recognized by a missing adipose fin. Steelhead releases, in 1987, consisted of 1.5 million fry and parr and 844,000 smolts to streams in the province (Appendix 1). The success of the steelhead stocking program is reflected in substantial hatchery adult returns to many rivers in recent years.

Although there are planned exceptions, Recreational Fisheries Branch policy directs that hatchery reared steelhead be returned to their stream of parental origin and that, whenever possible, eggs are taken from wild fish rather than marked hatchery fish. Exceptions may be found in streams classified as "hatchery" (see below).

Concern about the impact of hatchery fish introductions on wild fish populations resulted in the development of a system of stream classification, based on expected genetic risk, to guide in the management of fish stocks. Three broad classes were developed: wild, hatchery and augumented.

"Wild" streams are managed to protect, maintain and enhance natural fish populations. Appropriate enhancement techniques include fry plants and short-term smolt plants using native brood stock, stream improvement to increase stream carrying capacity, and regulations to control the harvest.

"Hatchery" streams have severely depleted wild stocks and may also have damaged spawning and rearing habitat, but there is potential for angling through the annual introduction of smolts.

"Augmented" streams are managed to maintain healthy wild stocks while providing for a harvestable surplus through the addition of cultured fish. The risk of genetic mixing between wild and hatchery fish is minimized by using only native wild adults for brood stock. Smolts are released in the lower stream reaches where angling pressure is greatest. Returning hatchery adults are available for anglers to harvest while release regulations for wild fish ensure an upriver escapement. Stream improvement and fry stocking may also be used as a

method of enhancement in augmented streams.

Sportfishing regulations are one of the most effective management strategies employed by fisheries biologists to protect and enhance steelhead stocks. Catch and release restrictions are used to protect wild stocks from harvest while still allowing anglers to enjoy the angling experience. Complete fishing closures are limited to specific areas where fish are in critical need of protection. Severe reductions in daily and annual steelhead catch limits, combined with favorable environmental conditions, have resulted in some river systems reaching or exceeding historical levels of abundance of steelhead in recent years.

Most anglers that fish for steelhead in the province are British Columbian's but many also come from other parts of Canada, the United States and around the world. Since the beginning of the questionnaire survey in 1966, the catch has ranged between 40,000 and 190,000 steelhead annually. This report details the results of the 1987-88 Steelhead Questionnaire, as well as presenting a comparative summary of previous years' data. The resident area boundaries used in this report correspond with the eight regional management boundaries. Reported catch and angling effort for the Skeena region has been separated into Queen Charlotte Islands and Skeena Mainland for comparison with previous years.

METHOD

Information on the steelhead sport catch was obtained from a postcard questionnaire survey of a sample of anglers who purchased steelhead licences in British Columbia. The questionnaire asked:

(a) Did you fish for steelhead between April 1, 1987, and March 31, 1988, and
(b) List the streams fished and, for each, the number of days fished, the number of wild steelhead kept and released, and the number of hatchery steelhead kept and released.

A total of ten resident groups were recognized: residents of eight regions of the province, residents of the other provinces and territories, and residents from outside of Canada (Fig. 1). Questionnaires were mailed to 51% of B.C. resident anglers and 90% of non-B.C. resident anglers for a combined sample size of 56% of all steelhead licencees. Nonresidents made up about 11% of licencees and were sampled at a higher rate to ensure a statistically adequate response. The returned questionnaries were analysed to determine wild and hatchery steelhead catch, angling effort and angler distribution for all streams fished.

Fig. 1. British Columbia resident areas.

RESULTS

During the 1987-88 fishing season, 31,263 steelhead angling licences were sold. Lower Mainland residents made up the largest segment (39%) of steelhead licencees. About 7% of the questionnaires mailed were either returned by the post office as undeliverable or were spoiled and unusable. Disregarding the unusable questionnaires, the response rate was 55%. The resulting sample group constituted 29% of all licenced steelheaders (Appendix 2).

Of the respondents, 74% actually fished for steelhead and, of these, 60% reported catching at least one fish. When extrapolated to include all anglers, an estimated 13,192 of 22,698 active anglers were successful in catching a steelhead (Appendix 3).

Angler units are one method of measuring angling activity and, from the questionnaire information, were determined by counting all the anglers who fished each stream throughout the year. Of course, many anglers fish more than one stream generating an additional angler unit on each stream they fish. Consequently, the total angler units are greater than the total number of anglers. Steelhead anglers living in coastal drainage areas of B.C., where steelhead occur, tended to fish in their home region. Of 8,260 angler units generated by Vancouver Island residents, 7,792 (94%) were spent fishing Vancouver Island streams. Similarly, Lower Mainland resident anglers spent most of their time fishing local streams (12,076 of 16,031 angler units). Many Lower Mainland steelheaders also went to Vancouver Island and the Thompson area to fish. On the Thompson River, 44% of the angler units were from Lower Mainland residents. The Dean River attracted a majority of anglers from other resident areas, particularly from outside of Canada. Just under half of the anglers fishing in the Skeena Mainland area were from outside of the region (Table 1).

The total number of days spent fishing on a river (angler days) is another method of measuring angling activity. In the Thompson, Cariboo and Skeena areas, the largest proportion of fishing effort was from visiting anglers (Table 2).

The total estimated provincial catch was 153,489 steelhead with Vancouver Island providing the largest catch of 53,646 fish. Following was the Skeena Mainland (41,009 fish) and the Lower Mainland (30,921 fish). Near 35% of the Vancouver Island catch was of hatchery origin. The Lower Mainland hatchery catch was 25%. Hatchery fish comprised 19% of the total provincial catch.

Fishing effort was highest in the Lower Mainland region (107,031 days), followed by the Skeena Mainland (61,674 days) and Vancouver Island (59,484). The provincial catch per angler day averaged 0.62. Anglers kept an average of 11% of the provincial steelhead catch ranging from 6% for wild fish to 30% for hatchery fish. The release ratio for hatchery fish averaged 70% compared to 94% for wild fish (Table 3; Appendices 4 & 5).

Table 1. 1987-88 Distribution of steelhead "angler units" in each region containing steelhead.

Resident Area	Angler units in Regions containing steelhead						Total Angler Units
	Van. Is	L. Main	Thompson	Cariboo	Skeena	QCI	
Vancouver Is.	7,792	104	70	64	163	37	8,230
L. Mainland	1,854	12,076	1,068	297	524	100	15,919
Thompson-Nicola	56	81	592	98	112	4	943
Kootenays	27	10	20	51	93	0	201
Cariboo	21	37	24	857	134	10	1,083
Skeena & QCI	24	51	11	28	5,561	599	6,274
Omineca-Peace	44	55	51	132	1,443	42	1,767
Okanagan	33	53	298	88	166	6	644
Nonres. Canadian	163	47	48	116	849	16	1,239
Non-Canadian	245	74	232	690	1,564	13	2,818
Total Angler Units	10,259	12,588	2,414	2,421	10,609	827	39,118

Table 2. 1987-88 Distribution of steelhead "angler days" in each region containing steelhead.

Resident Area	Angler days in Regions containing steelhead						Total Angler Days
	Van. Is	L. Main	Thompson	Cariboo	Skeena	QCI	
Vancouver Is.	52,984	309	278	492	809	94	54,966
L. Mainland	5,010	105,787	4,567	1,462	2,389	305	119,520
Thompson-Nicola	167	240	3,262	483	622	7	4,781
Kootenays	111	46	62	324	408	0	951
Cariboo	57	266	73	4,902	495	59	5,852
Skeena & QCI	40	178	22	83	39,139	3,530	42,992
Omineca-Peace	141	158	151	540	5,073	108	6,171
Okanagan	106	271	1,412	377	410	16	2,592
Nonres. Canadian	601	211	217	527	3,958	68	5,582
Non-Canadian	707	595	1,418	3,737	9,323	90	15,870
Total Angler Days *	59,924	108,061	11,462	12,927	62,626	4,277	259,277

* Total Angler Days differ from the area and provincial totals in Appendices 4 and 5 due to the level of precision of calculations (data on file).

Table 3. 1987-88 Angling effort and steelhead catch distribution.

Area	Angler days	Wild Kept	Wild Released	Hatchery Kept	Hatchery Released	Total catch	Kept/ day	Catch/ day
Vancouver Island	59,484	103	34,701	5,140	13,702	53,646	0.089	0.904
Lower Mainland	107,031	710	25,592	3,277	5,329	34,908	0.037	0.327
Thompson-Nicola	11,413	933	2,701	24	130	3,788	0.084	0.341
Cariboo	12,827	1,324	12,559	27	206	14,116	0.100	1.240
Skeena - Mainland	61,674	4,128	35,634	273	974	41,009	0.068	0.678
- Q.C.I.	4,251	726	4,839	0	2	5,567	0.169	1.283
Unknown streams	1,421	48	350	12	45	455	0.049	0.395
Total	258,101	7,972	116,376	8,753	20,388	153,489	0.065	0.617

Table 4. Steelhead streams having the highest total catch in 1987-88.

Streams	Angler days	Wild Kept	Wild Released	Hatchery Kept	Hatchery Released	Total catch	Kept/ day	Catch/ day
VANCOUVER ISLAND								
Stamp/Somass/Sproat	13,285	55	4,051	1,946	4,908	11,401	0.159	0.841
Cowichan	8,935	9	6,992	711	1,439	9,151	0.081	1.020
Campbell/Quinsam	9,056	9	4,107	475	2,427	7,018	0.052	0.711
Gold/Heber	2,813	4	6,173	22	49	6,248	0.008	2.211
Little Qualicum	4,416	13	1,512	453	783	2,761	0.107	0.626
Quatse	1,637	0	590	327	1,630	2,547	0.200	1.571
Englishman	2,529	0	1,169	279	640	2,088	0.108	0.844
(Big) Qualicum	3,636	9	753	468	845	2,075	0.129	0.569
LOWER MAINLAND								
Chilliwack/Vedder	54,171	195	18,371	2,133	3,096	23,795	0.043	0.440
Alouette (South)	8,575	0	986	464	1,114	2,564	0.054	0.298
Seymour	5,982	0	1,245	81	218	1,544	0.013	0.258
Cheakamus	1,830	8	914	0	16	938	0.004	0.511
Fraser	17,518	433	347	48	28	856	0.028	0.050
Chehalis	4,714	8	415	145	223	791	0.032	0.167
Capilano	3,108	0	452	85	189	726	0.027	0.233
THOMPSON-NICOLA								
Thompson	11,337	929	2,689	24	130	3,772	0.084	0.342
CARIBOO								
Dean	5,869	367	9,048	4	86	9,505	0.054	1.715
Atnarko/Bella Coola	4,992	686	2,279	16	67	3,048	0.144	0.694
SKEENA MAINLAND								
Bulkley	9,781	519	6,996	17	185	7,717	0.054	0.794
Skeena	17,103	1,388	6,163	12	144	7,707	0.084	0.449
Babine	3,159	0	3,724	0	80	3,804	0.000	1.305
Kitsumkalum	4,649	391	2,258	4	15	2,668	0.084	0.560
Kitimat	5,780	471	1,517	228	438	2,654	0.118	0.442
Kispiox	3,963	130	2,462	6	27	2,625	0.029	0.662
Morice	3,788	147	2,229	0	44	2,420	0.036	0.700
Lakelse	3,543	169	2,211	4	11	2,395	0.049	0.668
Zymoetz (Copper)	2,991	234	2,039	0	4	2,277	0.069	0.719
QUEEN CHARLOTTE ISLANDS								
Yakoun	2,188	415	2,502	0	2	2,922	0.187	1.289

NOTE: Angler days, Kept/day, and Catch/day are taken from Appendix 4; Wild and Hatchery fish Kept and Released for taken from Appendix 5.

The most heavily fished stream in the province was the Chilliwack/Vedder which supported 54,171 angler days and had the highest reported total catch (kept and released) of 23,795 fish. This total catch was followed by the Stamp/Somass/Sproat (10,960), Cowichan (9,151), Dean (9,505), Bulkley (7,717), and Skeena (7,707) rivers (Table 4).

Hatchery fish made up a sizeable component of the catch on numerous streams, particularly on Vancouver Island and the Lower Mainland:

Vancouver Island:		Lower Mainland:		Skeena:	
Campbell/Quinsam	(37%)	Alouette	(62%)	Kitimat	(25%)
Cowichan	(23%)	Capilano	(38%)		
Englishman	(44%)	Chehalis	(47%)		
Keogh	(30%)	Chilliwack/Vedder	(22%)		
Little Qualicum	(45%)	Coquihalla	(28%)		
Nanaimo	(20%)	Kanaka	(38%)		
Puntledge	(42%)	Little Campbell	(39%)		
Qualicum (Big)	(63%)	Nicomekl	(35%)		
Quatse	(77%)	Seymour	(19%)		
Stamp/Somass/Sproat	(63%)				

Of the active anglers, 7,277 (32%) kept from one to five fish, and 558 (2%) took home more than five fish. An estimated 23 anglers kept more than their legal limit of ten steelhead Appendix 6). Approximately 45% of all active anglers spent between one and five days fishing. The majority of anglers living in areas with a large number of steelhead streams (Vancouver Island, Lower Mainland and Skeena) spent over five days angling for steelhead. This was also true of anglers from outside of Canada. Steelhead anglers living in areas where there are few or no steelhead streams usually fished for only one to five days (Appendix 7).

DISCUSSION

History of Steelhead Licence Sales and Fees

The sale of steelhead licences has declined since its introduction in 1966. Initially, the licence fee was 25 cents for B.C. residents and $5.00 for nonresidents. The number of steelhead licences issued at that time averaged about 40,000. When resident fees were raised to $2.00, in 1971, licence sales dropped abruptly to near 30,000. Licence sales continued to decline gradually throughout the 1970's and early 1980's to a low of 20,600. This can be attributed to further increases in fees combined with decreases in steelhead stocks on some systems and the introduction of catch and release regulations. Steelhead licence sales are increasing again and now reflect numbers similar to the early 1970's (Fig. 2; Appendix 8).

Trends in Catch and Angling Effort

The steelhead catch has increased substantially since 1980, along with greater catch success (catch per angler day). During the years when licence sales and the number of active anglers were decreasing, the number of successful anglers remained fairly constant. This indicates that the least successful anglers probably dropped out leaving the

streams available to a group of more experienced fishermen. In recent years, however, with so many more steelhead caught, the number of successful anglers have increased noticeably. About 60% of active steelhead fishermen caught a fish this season, whereas the long-time average was nearer 45% (Fig. 2; Appendix 8).

The provincial steelhead catch this year resulted in an average catch (kept and released) of 12 fish per successful angler. Prior to 1980, successful anglers caught about 7 fish each. In the 1987-88 season, the catch per angler day was 0.62 which means that it took an average of 1.6 days to catch a steelhead. Each angler devoted an average of 11 angler days to steelhead fishing in British Columbia (Appendix 8).

The dramatic increase in steelhead catch in recent years can be attributed to an increase in stock abundance in many streams resulting from a combination of factors: (1) improvement in wild juvenile recruitment, (2) supplemental stocking with hatchery fry and smolts, (3) reduced harvest quotas, (4) catch and release restrictions, and (5) improved ocean survival. The rise in total catch is definitely inflated by the fact that many released fish are caught more than once. Just how many times a released fish is recaptured is unknown, but it is evident on some rivers that the total catch by anglers exceeds the estimated run size. This year, only 6% of the wild steelhead catch was harvested by anglers compared to 30% of the hatchery fish catch. Prior to catch and release, more than half of the total steelhead catch was kept (Fig. 3; Appendix 9).

Provincial angling effort dropped to an all-time low in 1981-82 but has since recovered beyond historic levels (Fig. 3). Catch per angler day, which is a reflection of angling success, decreased slightly over the previous season in all areas, except for the Cariboo. However, catch success in all regions is still at favourably high levels. Figures 4 and 5 show the change in angling effort, success and catch in each region since 1970. An overall improvement in catch per angler day in all regions, in recent years, corresponds with increases in total catch. Angling effort is on the increase again and is particularly noticeable in the Lower Mainland region.

Hatchery adult returns are primarily influenced by three factors: (1) number of smolts released, (2) size of smolts at release, and (3) ocean survival conditions. In 1987-88, anglers on Vancouver Island caught an estimated total of 53,646 steelhead, of which 34,804 (65%) were wild and 18,842 (35%) were of hatchery origin. Compared to the previous season, the wild catch was up about 15% while hatchery catch was down about 24%. The reduction in the hatchery catch was primarily due to a poor return to the Stamp-Somass-Sproat system, where hatchery catch fell 41% over the previous season. Also contributing to the overall decrease was the Keogh River where catch of hatchery steelhead was down 85% from the 1986-87 season. The combined hatchery catch in these two streams alone was down about 6,600 fish. Of the top ten streams on the Island, all but the Gold River were hatchery augmented systems. These ten streams produced 84% of the steelhead catch and supported 85% of the angling effort in the region.

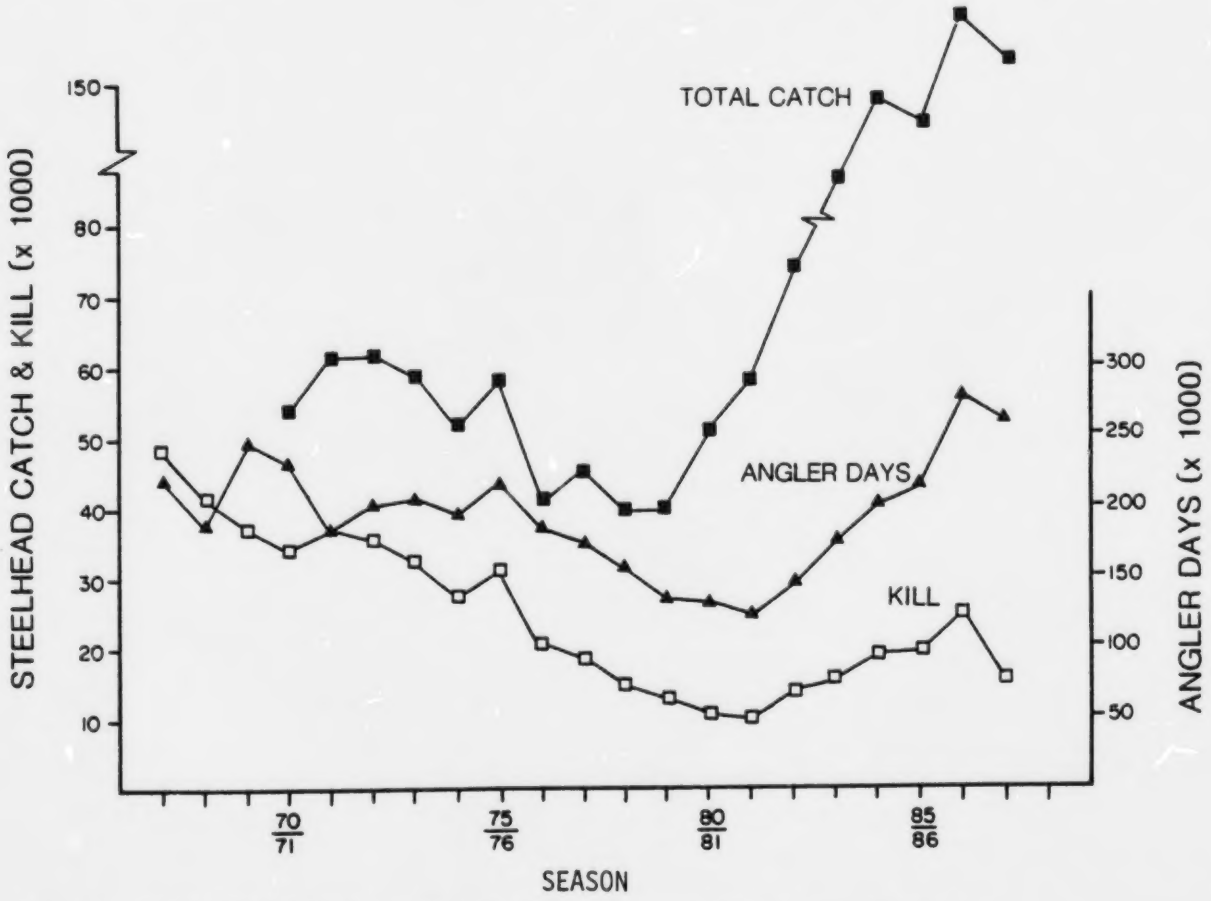

Fig. 3. Steelhead angling effort and catch success since 1967-68.

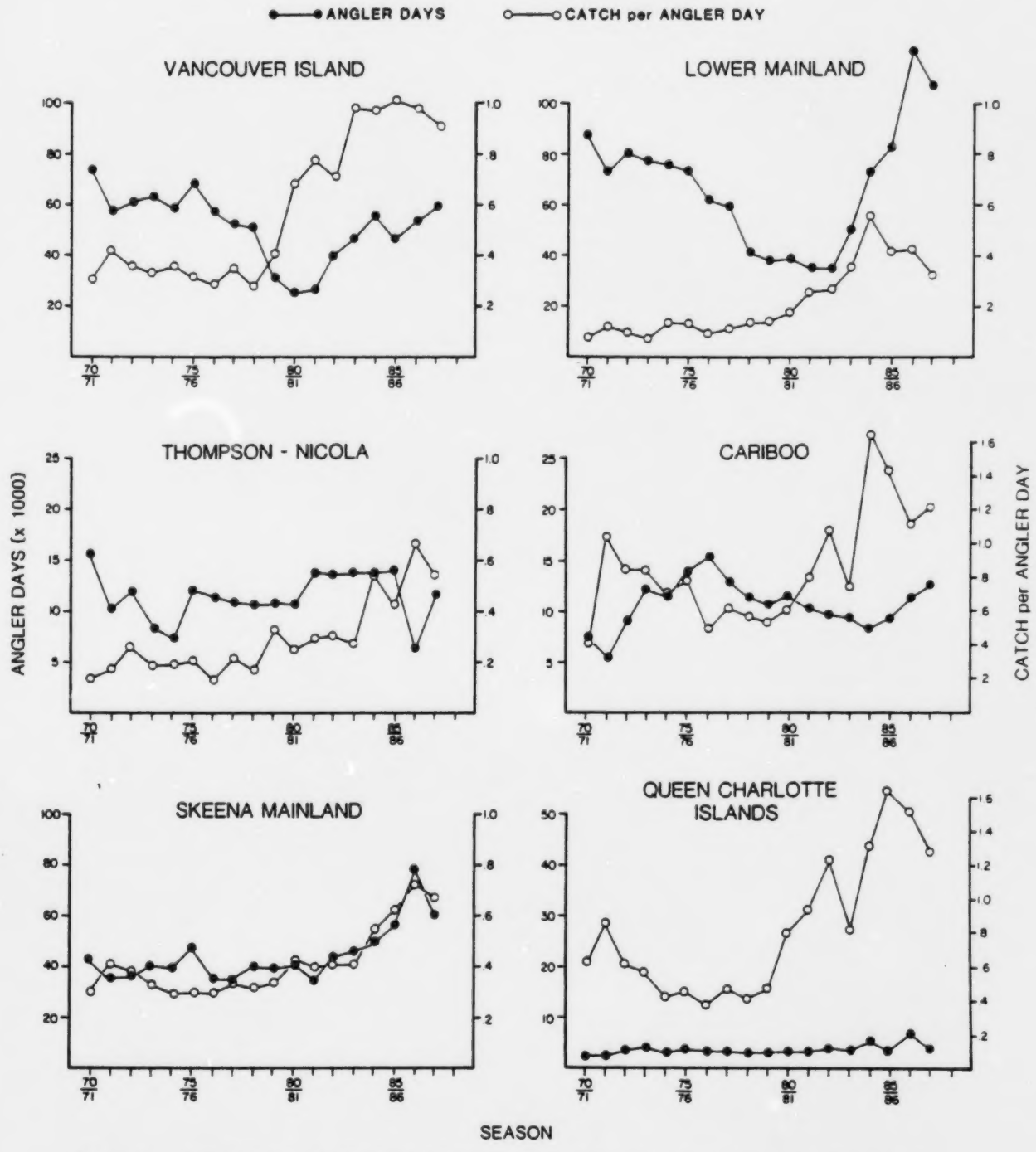

Fig. 4. Trends in steelhead angling effort and catch success for each area containing steelhead streams.

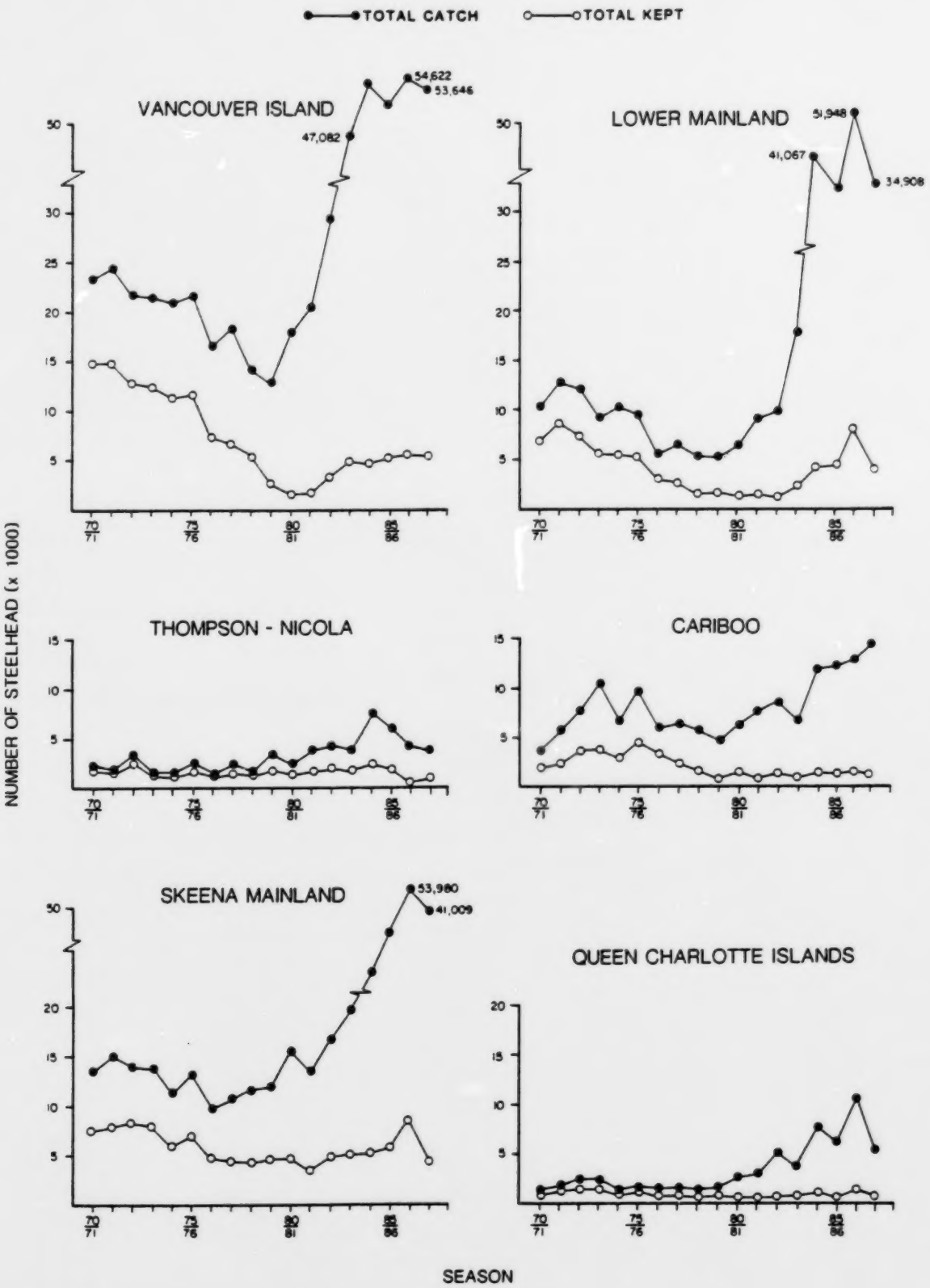

Fig. 5. Trends in total steelhead catch and kept for each area containing steelhead streams.

Hatchery smolts released in late April, 1985, to the Stamp system were small (the average weight of 192,000 smolts released was 35 grams) so survival was poor. The Keogh River was not stocked in 1985, as the hatchery program was in the process of being transferred from the Fisheries Research Section to the Quatse River C.E.D.P. facility. Smolts from 1985 would be expected to return as spawning adults in 1987-88, so the reduced run size was not a surprize.

In addition, hatchery steelhead returns to the Quinsam, Campbell, Nanaimo and Sooke rivers were generally less than anticipated. The Nanaimo, Sooke and Puntledge rivers are now the focus of extra management effort in an attempt to improve the rate of hatchery steelhead returns.

Recent regulation amendments on the Gordon, Caycuse, Gold, Heber and Tsitika rivers are intended to allow anglers greater access to summer steelhead holding areas in previously closed headwater sanctuary areas. Maintenance of catch and release, coupled with year round bait bans on most of these streams, should protect required spawning stock while providing for improved angling recreation.

The 1987-88 steelhead season in the Lower Mainland region was much poorer than the previous season, characterized by a dramatic drop in total steelhead catch and catch success. Overall, angler effort for steelhead in the region decreased by about 11% from the record level of angling that occured in 1986-87; on some streams effort was down by as much as 40%.

Steelhead anglers took more than a full day's effort longer to catch a steelhead in the Lower Mainland Region during the 1987-88 season compared to the previous year (3.1 days per fish versus 2.3 days per fish, respectively).

While wild steelhead returns were not strong in most streams, it was the very poor showing of hatchery fish in the region's three most heavily fish streams (Vedder, Chelhalis and Alouette) that drove the season's results downward. Fewer hatchery fish available meant anglers were less inclined to fish, particularly on the Chehalis (effort down 40%), the Alouette (effort down 19%) and the Vedder (effort down 20%). Angling for hatchery steelhead was extremely poor on these streams.

On several steelhead streams, angler effort levels increased. These were Capilano, Seymour, Kanaka and Fraser rivers. Angler days spent on the Fraser were up almost 50% over the previous season reflecting a growing interest in steelhead fishing during the fall migration of Thompson River steelhead.

Poor returns of hatchery steelhead can partly be attributed to the small size of smolts released from Chehalis River Hatchery in 1986. These small fish do not survive well. Also, in 1986, fewer smolts were released from Chilliwack River Hatchery.

Unexpected poor returns to the Fraser, Thompson, Chilcotin and Chilko rivers, in 1986-87, resulted in an emergency steelhead release regulation being instituted to help increase the spawning escapement. The result was a near 50% decline in angler effort on the Thompson River. This emergency measure was lifted in the 1987-88 season, and

angling effort on the Thompson River recovered. The number of steelhead caught, however, remained low.

In November, 1989, a year-round catch and release regulation will be initiated for steelhead on a section of the Atnarko-Bella Coola River. The catch and release area will extend from the present boundary at the Atnarko Campsite downstream to the Steep Roof boat launch on the Bella Coola. The intent of this regulation is to protect the early run steelhead on the Bella Coola system. In addition to the main spring-run on the river, there is both a summer and an early winter-run of steelhead. These fish are in the river 6 to 8 months ahead of spawning time. The early winter-run steelhead, in particular, hold in sections of the lower Atnarko and upper Bella Coola rivers. As angling pressure on these fish has increased in recent years and is expected to continue growing, this regulation is necessary to protect the early steelhead runs. In addition, this regulation will protect spawning steelhead from becoming the target of anglers who have come to the river looking for spring salmon.

Catch in the Skeena Mainland, comprised almost entirely of wild fish, has also risen considerably in recent years. The general increase in steelhead catch across the Skeena Mainland and Queen Charlotte Islands over the last ten years reflects the combined and interdependent effects of larger run sizes and increased numbers of anglers. Higher catches may be further explained by better access, better fishing gear and greater angling knowledge, which have generally served to increase efficiency.

The 1987-88 Skeena area catch of 41,009 steelhead, although still high, was less than the previous seasons catch of 54,000 fish. Angling effort also decreased. This is the result of both poorer water conditions and lower returns of steelhead to the river. Many anglers were discouraged by a reduction in the steelhead quota for the Skeena River to one fish per year, in 1987-88. The one fish annual quota was necessary due to substantial interceptions of steelhead in commercial fisheries off the Skeena and Nass rivers. These reduced quotas will have to continue until efforts to reduce the commercial by-catch of steelhead are successful.

Response Bias

Steelhead biologists in Oregon and Washington conducting mailout questionnaire surveys of steelhead angling success have found a "positive response bias" in their results. In British Columbia, comparative results of the Steelhead Questionnaire with on-site creel surveys suggests a similar bias trend. The questionnaire may be producing inflated estimates of the steelhead catch (both kept and released). For those streams receiving over 400 angler days per year (the larger, more popular streams), the kill estimates from the questionnaire averaged 32% higher than kill estimates obtained from on-site creel surveys. The range in error was considerable (from 4% to 63%) indicating that the 32% overestimate should be applied selectively (Steelhead Harvest Analysis 1978-79, Fish and Wildlife Bulletin No. B-8). Creel survey results also indicate that estimates of fish released and angler days are even more inflated than estimates of steelhead kept.

Few anglers maintain a permanent record of fish released or the number of days spent fishing, so guesswork is often the only answer. More rivers in recent years have been stocked with hatchery fish and are exhibiting strong returns. Some anglers who are fishing these rivers regularly—some almost daily—record the number of steelhead kept but do not remember the number of days fished or the number of wild and hatchery fish released. In the last few years, some questionnaires have been returned incomplete rendering them almost useless. Eliminating these anglers from the sample would considerably alter the catch and effort estimates for the rivers fished. It has been possible to contact most of these anglers by telephone to clarify the information provided on the questionnaire and fill in the blanks. As long as anglers have continued success catching (and releasing) such large numbers of fish, this problem will continue. Of course, there is also the likelihood of some dishonest responses.

The comparison of creel survey and questionnaire results are not always reliable. Creel survey techniques have varied from intense sampling (Dean and Thompson rivers) and random interviews (Campbell and Quinsam rivers) to voluntary angler reports (Keogh and Chilcotin rivers). The results range from accurate to indicative, reflecting considerable differences when compared to the questionnaire survey.

Throughout the years, the results of the Steelhead Questionnaire have been derived from a 50% response rate to a single mailout of the questionnaire. It has generally been assumed that the keenest, most active, and most successful anglers are the ones most likely to complete the questionnaire. If this was the case, when the number of fish reported caught was extrapolated to include all anglers, the resulting estimates would be inflated or positively biased due to the poor representation of inactive or dissatisfied anglers.

In 1978-79, and again in 1982-83, a second mailing of the questionnaire was undertaken to increase the response rate and, thus, attempt to arrive at a more accurate estimate of angling activity and success. When the results of both mailings were combined, the decrease in estimates of active anglers, successful anglers, angler days and total catch supported the possibility of response bias. If the majority of the remaining nonrespondents were found to be inactive or unsuccessful, as generally assumed, the estimates of active and successful anglers from the first mailing would be reduced considerably more. The results of a follow-up telephone survey in 1982-83 of a small random sample of Vancouver Island resident anglers who did not respond to either mailing, however, did not show indications of response bias. Further effort is necessary if a reasonable estimate of response bias is to be determined, either through multiple mailings of the questionnaire or a telephone survey on a much broader scale.

In the meantime, the analysis results present a useful indication of increasing and decreasing trends in stock status and angling activity, and success of the hatchery steelhead program. It's usefulness to fisheries managers is strongly recognized in British Columbia.

Trends and Forecasts of Winter-run Steelhead at the Keogh River

The Recreational Fisheries Branch, Research and Development Section continues to monitor the wild steelhead population of the Keogh river, on northern Vancouver Island. Study of the survival rates and life history components of these fish has assisted in the goals of developing both an understanding of the survival rates of wild steelhead and methods to assess the status of wild returns to rivers, and thereby estimate what we might expect in years ahead. These life history studies commenced in 1975 as part of the original goals focused on enhancement techniques.

Steelhead adults and kelts were monitored by contract at the Keogh River fish fence, at the mouth of the river, to provide an estimate of the spawning population size. In addition, smolts were enumerated as they migrated to the ocean in the spring. A model based on the data from the counting and measuring of smolts can be used as an indication of future adult returns, if marine conditions for survival are relatively stable.

Smolts

The smolt count for the 1988 season was low, as was predicted in last year's Harvest Analysis, compared to other years. Wild smolts numbered 3,324 (Fig. 6), the third lowest in twelve years of measurement, and indicated a dramatic switch from the steadily increasing smolt yield since 1983. The reason for the drop in numbers is attributed to the termination of enhancement experiments. Nearly all of the Keogh River mainstem had been fertilized with inorganic fertilizer beginning in 1983 and extending to 1986.

This experimental enrichment has had a positive effect on fish growth rates in the stream. As a result of the altered growth rates, the age of smolts was reduced by about one year. Consequently, it will require an additional year for the age structure of the juvenile steelhead to change back to the unfertilized state. The size of smolts at a given age has already changed back to levels that are no different from pre- enrichment years. Average smolt length (162mm) last season was low (Fig. 7) due to poor representation in the smolt yield from older, larger individuals. The smolt output from the Keogh River in 1989 should reflect yields under natural conditions. The Keogh River smolt output has not been typical of northern Vancouver Island streams because of this ecosystem experiment.

Adults

The steelhead spawning population in 1988 (924 males and 877 females) appeared to be 70% higher than expected based on the number and size of smolts that had left the river. The strength of this run size may have been related to excellent marine conditions for survival, the timing of the smolt migration, an additional benefit from stream enrichment to smolt condition factor, an error in the population estimation procedure, or other unknown factors. Trends in the catch on Vancouver Island, the Queen Charlotte Islands, the Lower Mainland, and the Skeena Mainland (Fig. 5) suggest that run sizes of wild steelhead were high in general, in contrast to stocks migrating into the Fraser River (Thompson-Nicola, Fig. 5). There is a need to look more closely

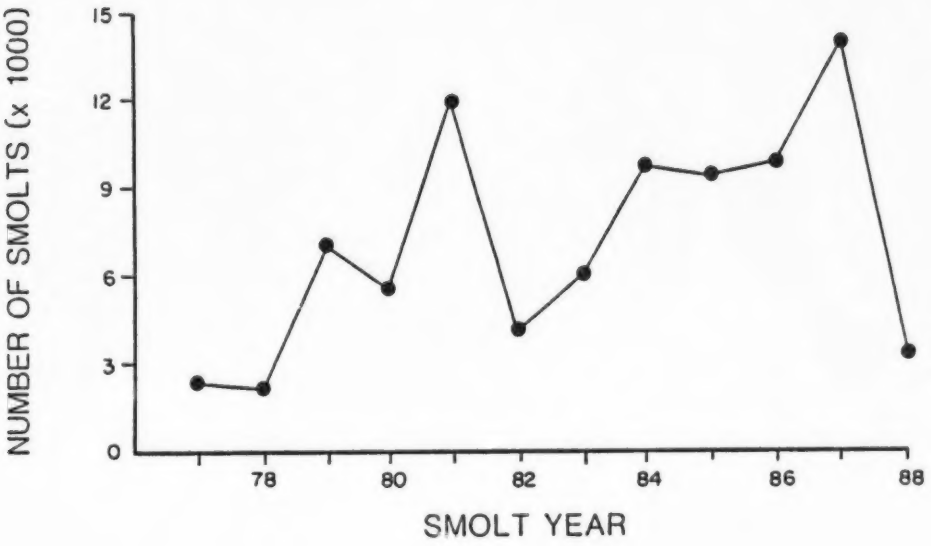

Fig. 6. Steelhead smolt yield of the Keogh River from 1977 to 1988.

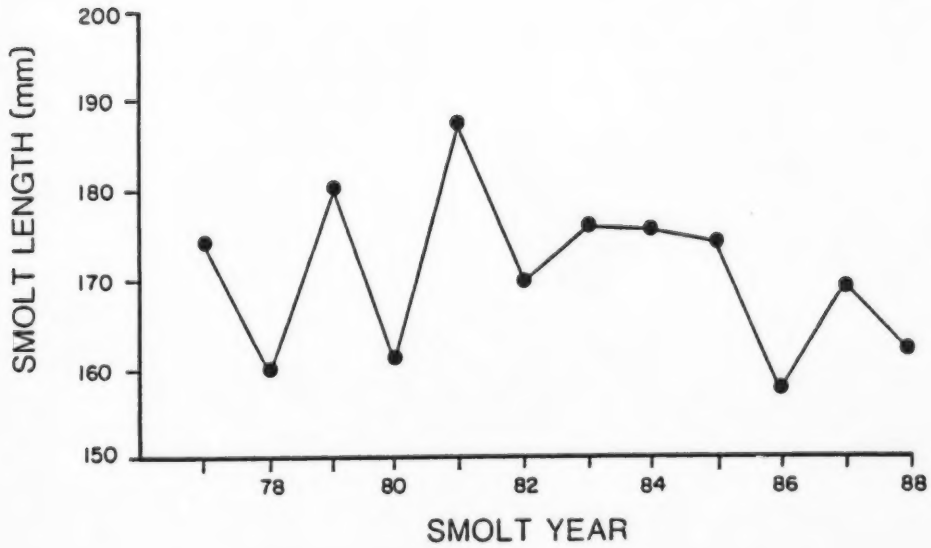

Fig. 7. Mean length of steelhead smolts from the Keogh River during the spring migrations from 1977 to 1988.

at trends in the Keogh River compared to other sources of information (catch data, snorkel surveys, estimates at other counting fences).

Adult Age

Not only were there more adults than expected in the Keogh River, they were large fish, most having spent three years in salt water. The composition of maiden-run females was 70% ocean-age 3 spawners, whereas males returning after three years comprised 55% of the 1988 run. About 20% of the population was returning to spawn a second or third time, approximately twice the average historical percentage. Those fish returning as ocean-age 3 left as smolts in 1985. From those 1985 smolts, 61% of the survivors returned after two ocean-years and 39% after three ocean-years, and this was about equal in males and females (Fig. 8).

Marine Survival

Conditions for marine survival continue to be better than expected based on smolt numbers and size (Fig. 9). It is unknown how long this apparent trend might continue, but hopefully our monitoring exercise will be sensitive to downturns, should they begin to develop. The ability to detect change in survival rates is directly related to the accuracy of the smolt and adult data collection.

Forecasts

The wild run size of adult steelhead in the Keogh River is expected to be high in 1989, but low in 1990 (Fig. 10) compared to historic averages. Considering the size and number of smolts that migrated to the ocean, the relationships between smolt size and survival, and smolt size/age and age at return, then the returns of ocean-age 2 fish from 1987 smolts and ocean-age 3 fish from 1986 smolts are estimated to total approximately 1400 fish. Since smolt output has dropped after ending stream enrichment, wild returns in 1990 from 1988 smolts and 1987 smolts are likely to be below average (Fig. 10) at 700 maiden-run fish. In addition, repeat spawning adults can be expected (averaging 10% of the run), as well as a few jack steelhead. As mentioned earlier, predictability of returns to the Keogh River may be confounded by stream enrichment experiments that altered the freshwater age composition of smolts. It is unclear what ocean-age an adult might return at when it has taken one or two years in fresh water to achieve smolt size rather than three or four.

The wild runs will be complimented by the returns from hatchery releases in the Keogh River. Smolt releases from O'Connor Lake netpens include about 17,000 hatchery smolts liberated below the fish fence in 1986; 6,000 hatchery smolts in each of 1987 and 1988 releases below the fence near the river mouth; and 7,000 smolts that migrated from O'Connor Lake in 1987, where they were released the previous fall as downgrades. All of these fish can be expected to contribute to the 1989 and 1990 adult run sizes by adding about 1,000 and 600 fish, respectively. The release of hatchery smolts in the Keogh River will eventually be eliminated, returning the river to wild status.

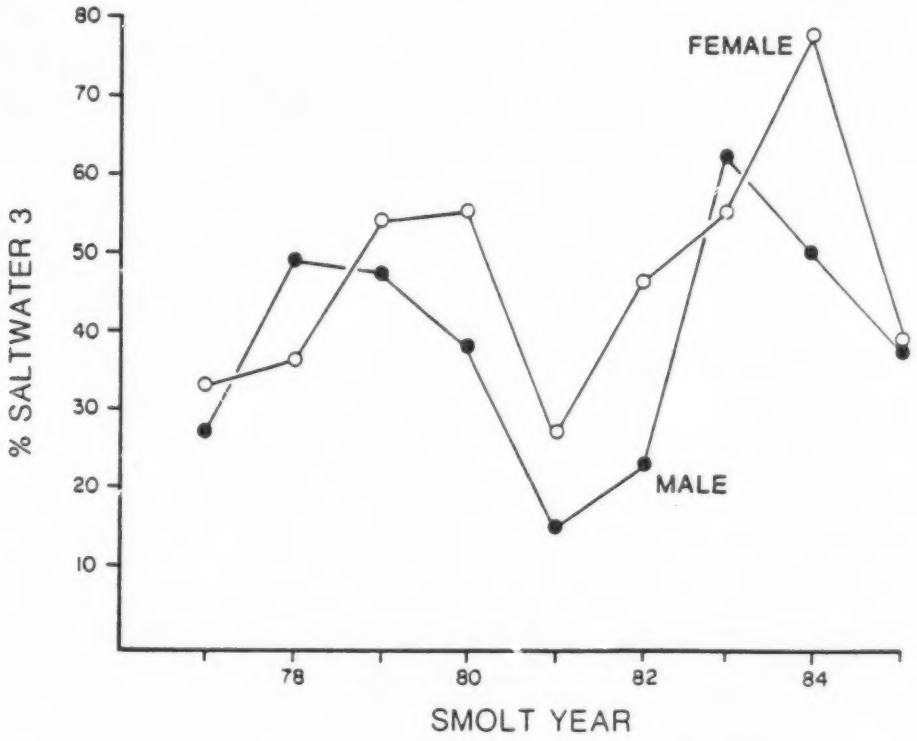

Fig. 8. The percent composition of adults that spent three years in saltwater prior to return to the Keogh River which they left as smolts from 1977 to 1985.

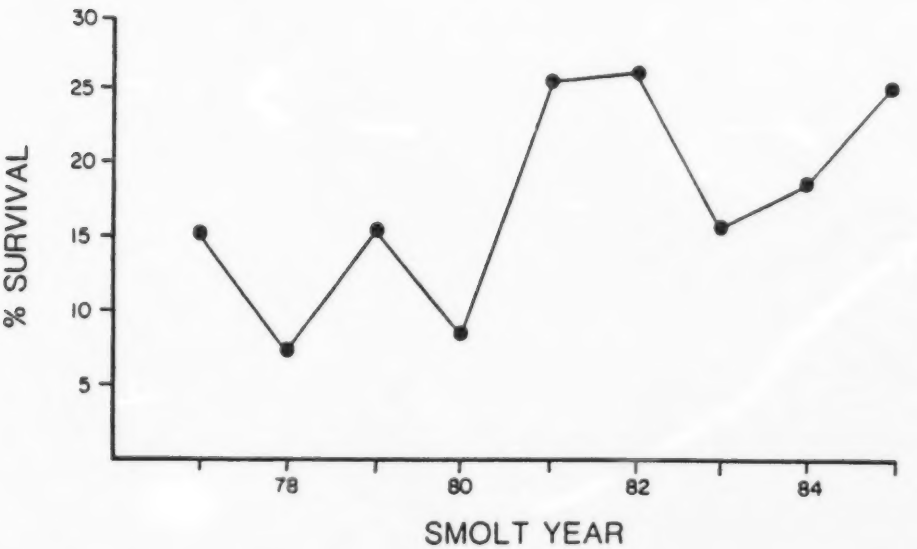

Fig. 9. The smolt-to-adult survival rates (%) for Keogh River adult returns from the smolts of 1977 to 1985.

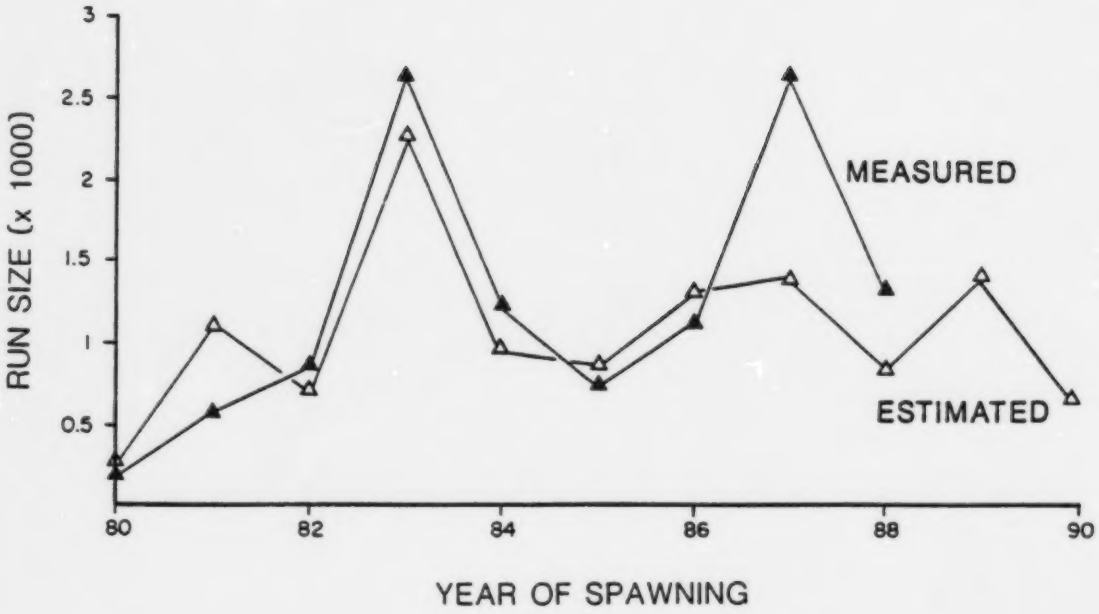

Fig. 10. Comparison of the estimates of the adult steelhead populations from 1980 to 1988 with run sizes predicted for the same years, including forcasts of Keogh River run sizes to 1990.

Appendix 1. 1988 Juvenile steelhead releases from Provincial (MOE), Federal (DFO), and Public Involvement (Public) fish culture facilities.

Stream	Facility	Fry & Parr Released	Smolts Released
VANCOUVER ISLAND			
Ash R.	Robertson Cr. Hatchery (DFO)	50,000	
Campbell R.	O'Connor Lk. netpens (Public)		28,062
Cluxewe R.	O'Connor Lk. netpens (Public)		9,987
Cowichan R.	Cowichan Lake netpens (MOE)		51,358
Englishman R.	Cobble Hill netpens (MOE)		21,178
	Vancouver Island Hatchery (MOE)	55,609	
Keogh R.	O'Connor Lk. netpens (Public)		5,453
L. Qualicum R.	Little Qualicum Hatchery (DFO)		15,077
	Big Qualicum Hatchery (DFO)		5,000
Leech R.	Vancouver Island Hatchery (MOE)	3,000	
Millstone R.	Big Qualicum Hatchery (DFO)		5,960
Nanaimo R.	Vancouver Island Hatchery (MOE)	11,889	
	Cobble Hill netpens (MOE)		42,928
Puntledge R.	Puntledge Hatchery (DFO)		31,228
Qualicum (Big) R.	Big Qualicum Hatchery (DFO)	15,034	22,944
Quatse R.	O'Connor Lk. netpens (Public)		14,955
Quinsam R.	Quinsam Hatchery (DFO)	28,768	22,693
Robertson Cr.	Robertson Cr. Hatchery (DFO)		128,231
Salmon R.	Vancouver Island Hatchery (MOE)	63,259	
Somass R.	Robertson Cr. Hatchery (DFO)	20,974	
Sooke R.	Cobble Hill netpens (MOE)		37,653
	Vancouver Island Hatchery (MOE)	4,532	
Tsitika R.	Vancouver Island Hatchery (MOE)	9,303	
LOWER MAINLAND			
Ashlu R.	Tenderfoot Hatchery (DFO)	23,590	
Big Silver Cr.	Chehalis Hatchery (DFO)		7,064
Brothers Cr.	Capilano Hatchery (DFO)		12,122
Brunette R.	Alouette R. Corrections (MOE)		10,320
Capilano R.	Capilano Hatchery (DFO)	25,009	40,080
Chehalis R.	Chehalis Hatchery (DFO)		81,124
Chilliwack R.	Chilliwack Hatchery (DFO)		121,246
Cogburn Cr.	Chehalis Hatchery (DFO)		7,064
Coquihalla R.	Fraser Valley Hatchery (MOE)	19,994	
Elaho R.	Tenderfoot Hatchery (DFO)	29,017	
Gosnell Cr.	Fraser Valley Hatchery (MOE)	12,660	
Kanaka Cr.	Bell-Irving Hatchery (DFO)		6,111
L. Campbell R.	L. Campbell Hatchery (Public)		7,622
Mamquam R.	Tenderfoot Hatchery (DFO)	9,755	
Nicomekl R.	Fraser Valley Hatchery (MOE)		15,930
S. Alouette R.	Alouette R. Corrections (MOE)		22,540
Seymour R.	Seymour Hatchery (DFO)	22,794	18,778
Stave R.	Alouette R. Corrections (MOE)		11,508

Appendix 1. (continued)

Stream	Facility	Fry Released	Smolts Released
THOMPSON-NICOLA			
Bonaparte R.	Spius Cr. Hatchery (DFO)	181,037	
Coldwater R.	Spius Cr. Hatchery (DFO)	36,708	
Spius Cr.	Spius Cr. Hatchery (DFO)	101,048	
Thompson R.	Spius Cr. Hatchery (DFO)	87,210	
CARIBOO			
Noosgulch R.	Snootli Hatchery (DFO)	32,297	
Salloomt R.	Snootli Hatchery (DFO)	58,266	
SKEENA MAINLAND			
Blunt Cr.	Toboggan Cr. Hatchery (DFO)	46,667	
Bulkley R.	Fraser Valley Hatchery (MOE)	92,738	
Harold Price Cr.	Toboggan Cr. Hatchery (DFO)	58,391	19,410
Kitsumkalum R.	Deep Cr. Hatchery (Public)	5,379	
Kitimat R.	Kitimat Hatchery (DFO)		48,328
Morice R.	Fraser Valley Hatchery (MOE)	72,065	
Nangeese R.	Kispiox Hatchery (DFO)		948
PROVINCIAL TOTAL		1,176,993	872,902

Appendix 2 · NUMBER OF STEELHEAD LICENCEES, QUESTIONNAIRES AND RESPONDENTS BY RESIDENT AREA, 1987-88

RESIDENT AREA	LICENCEES	QUESTIONNAIRES MAILED	RESPONDENTS	NOT USEABLE*	RESPONSE RATE (%)	LICENCEES SAMPLED (%)
1 VANCOUVER ISLAND	4966	2369	1123	209	51.99	22.61
2 LOWER MAINLAND	12107	5939	2998	480	54.92	24.76
3 KAMLOOPS	984	542	329	26	63.76	33.43
4 KOOTENAYS	255	137	86	6	65.65	33.73
5 CARIBOO - CHILCOTIN	1228	644	349	31	56.93	28.42
6 SKEENA	5888	3355	1543	295	50.42	26.21
7 OMINECA - PEACE	1730	988	502	85	55.59	29.02
8 OKANAGAN	666	353	207	30	64.09	31.08
9 NON - RESIDENT (CANADIAN)	1103	980	559	55	60.43	50.68
0 NON - CANADIAN	2336	2102	1221	74	60.21	52.27
TOTAL	31263	17409	8917	1291	55.32	28.52

* Includes questionnaires that were :
  1. returned by the post office as undeliverable, or
  2. spoiled.

Appendix 3 - ESTIMATE OF ACTIVE AND SUCCESSFUL STEELHEAD ANGLERS BY RESIDENT AREA, 1987-88

RESIDENT AREA	LICENCEES	RESPONDENTS	REPORTED ACTIVE ANGLERS*	ACTIVE ANGLERS (%)	ESTIMATED ACTIVE ANGLERS	REPORTED SUCCESSFUL ANGLERS**	SUCCESSFUL ANGLERS (%)	ESTIMATED SUCCESSFUL
1	4,966	1,123	826	73.6%	3,655	566	68.5%	2,504
2	12,107	2,998	2,115	70.5%	8,535	1,053	49.8%	4,250
3	984	329	256	77.8%	766	120	46.9%	359
4	255	86	67	77.9%	199	35	52.2%	103
5	1,228	349	232	66.5%	817	127	54.7%	446
6	5,888	1,543	1,000	64.8%	3,815	622	62.2%	2,373
7	1,730	502	363	72.3%	1,251	184	50.7%	634
8	666	207	172	83.1%	553	78	45.3%	250
9	1,103	559	488	87.3%	963	269	55.1%	530
0	2,336	1,221	1,121	91.8%	2,144	911	81.3%	1,743
TOTAL	31,263	8,917	6,640	74.5%	22,698	3,965	59.7%	13,192

* Number of respondents who actually fished for steelhead.

** Number of respondents who actually caught steelhead (whether kept or released).

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
1	ADAM RIVER	6	18	4	11	0	0	1	1	0.000	0.167	1
2	AHNUHATI RIVER	19	79	5	21	0	0	24	101	0.000	1.263	2
3	AMOR DE COSMOS RIVER BEAR R.	28	123	11	48	1	4	44	194	0.036	1.607	3
4	APPLE RIVER	1	4	1	4	0	0	0	0	0.000	0.000	4
6	ASH RIVER	39	171	11	48	0	0	81	358	0.000	2.077	6
10	BIG QUALICUM RIVER QUALICUM R.	843	3636	140	580	109	474	371	1596	0.129	0.569	10
11	BLACK CREEK	1	4	1	4	0	0	0	0	0.000	0.000	11
12	BROTHER CREEK	1	4	1	4	0	0	0	0	0.000	0.000	12
13	BROWNS RIVER	7	30	2	8	1	4	3	13	0.143	0.571	13
14	BURMAN RIVER	15	50	7	24	0	0	10	44	0.000	0.667	14
15	CAMPBELL RIVER	690	2802	131	490	18	72	324	1382	0.026	0.496	15
16	CAYCUSE RIVER	8	34	4	17	0	0	14	61	0.000	1.750	16
17	CAYEGHLE CREEK	19	84	3	13	0	0	14	61	0.000	0.737	17
18	CHASE RIVER	30	132	1	4	1	4	0	0	0.033	0.033	18
19	CHEMAINUS RIVER	51	222	16	68	2	8	18	78	0.039	0.392	19
20	CHINA CREEK	74	318	17	68	1	4	111	481	0.014	1.514	20
21	CLUXEWE RIVER	68	290	19	80	2	8	78	322	0.029	1.176	21
22	COLEMAN CREEK	1	4	1	4	0	0	1	4	0.000	1.000	22
23	COLONIAL CREEK	1	4	1	4	0	0	0	0	0.000	0.000	23
24	CONUMA RIVER	15	62	7	28	0	0	23	96	0.000	1.533	24
25	COUS CREEK	4	17	3	13	0	0	6	26	0.000	1.500	25
26	COWICHAN RIVER COTTONWOOD,SKUTZ FAL	2065	8935	266	1104	167	717	1940	8425	0.081	1.020	26
29	CYPRE RIVER	1	4	1	4	0	0	0	0	0.000	0.000	29
30	DAVIE RIVER	5	22	2	8	0	0	0	0	0.000	0.000	30
31	DE MAMIEL CREEK	2	8	1	4	3	13	4	17	1.500	3.500	31
34	ENGLISHMAN RIVER	620	2529	116	489	67	277	456	1807	0.108	0.844	34
35	ESPINOSA CREEK	1	4	1	4	0	0	0	0	0.000	0.000	35
36	EVE RIVER	42	159	15	53	0	0	59	225	0.000	1.405	36
38	FRANKLIN RIVER	2	8	2	8	0	0	0	0	0.000	0.000	38
39	FRENCH CREEK	5	22	2	8	0	0	2	8	0.000	0.400	39
40	GLENDALE CREEK	7	30	2	8	0	0	5	22	0.000	0.714	40
41	GOLD RIVER UCONA R.	675	2712	166	620	6	26	1518	6046	0.009	2.258	41
42	GOLDSTREAM RIVER	8	35	5	22	0	0	2	8	0.000	0.250	42
43	GOODSPEED RIVER	4	17	2	8	0	0	17	75	0.000	4.250	43
44	GORDON RIVER	2	6	2	6	0	0	6	19	0.000	3.000	44
45	HARRIS CREEK	70	305	21	90	1	4	69	296	0.014	1.000	45
48	HEBER RIVER	35	101	16	40	0	0	46	169	0.000	1.314	48
49	HEMMINGSEN CREEK	30	132	1	4	0	0	8	35	0.000	0.267	49
55	KAIPIT CREEK	7	30	3	13	0	0	5	22	0.000	0.714	55
56	KAKWEIKEN RIVER	6	26	3	12	0	0	1	4	0.000	0.167	56
57	KAOUK RIVER ROWLAND CR.	4	17	1	4	0	0	2	8	0.000	0.500	57
59	KEOGH RIVER	172	744	47	199	19	82	234	1023	0.110	1.471	59
62	KIRBY CREEK	2	8	1	4	0	0	0	0	0.000	0.000	62
64	KLANAWA RIVER	3	13	2	8	0	0	1	4	0.000	0.333	64
67	KOKISH RIVER	29	128	7	30	0	0	44	194	0.000	1.517	67
68	KOKSILAH RIVER	34	150	9	39	0	0	3	13	0.000	0.088	68
71	LEINER RIVER	31	120	5	19	0	0	20	70	0.000	0.645	71
72	LITTLE RIVER	2	3	1	1	0	0	0	0	0.000	0.000	72
73	LITTLE QUALICUM RIVE	1028	4416	199	824	110	464	534	2293	0.107	0.626	73

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
74	LITTLE ZEBALLOS RIVE	3	10	2	6	0	0	9	33	0.000	3.000	74
76	MCCURDY CREEK	4	17	1	4	0	0	3	13	0.000	0.750	76
78	MAGGIE RIVER	5	22	3	13	0	0	1	4	0.000	0.200	78
	DRAW CR.											
79	MAHATTA RIVER	10	43	6	25	0	0	18	78	0.000	1.800	79
81	MARBLE RIVER	56	170	18	54	0	0	20	70	0.000	0.357	81
	AMAZON R.,LINK CR.											
82	MEGIN RIVER	5	20	3	12	0	0	3	12	0.000	0.600	82
86	MOHUN CREEK	3	9	3	9	0	0	0	0	0.000	0.000	86
	TROUT CR.											
88	MUCHALAT RIVER	1	4	1	4	0	0	0	0	0.000	0.000	88
89	MUIR CREEK	5	22	2	8	1	4	7	30	0.200	1.600	89
90	NAHMINT RIVER	7	30	6	26	0	0	3	13	0.000	0.429	90
91	NAHWITTI RIVER	5	22	3	13	0	0	2	8	0.000	0.400	91
92	NANAIMO RIVER	827	3606	107	445	33	145	389	1713	0.040	0.510	92
94	NIMPKISH RIVER	208	903	43	180	0	0	154	667	0.000	0.740	94
95	NITINAT RIVER	28	122	8	34	0	0	11	47	0.000	0.393	95
	LITTLE NITINAT R.											
97	OYSTER RIVER	230	990	72	299	2	8	101	440	0.009	0.448	97
100	PERRY RIVER	5	21	4	17	0	0	8	34	0.000	1.600	100
101	PUNTLEDGE RIVER	103	443	25	103	0	0	95	414	0.000	0.922	101
	COURTENAY R.											
102	QUATSE RIVER	375	1637	58	251	75	326	514	2219	0.200	1.571	102
103	QUINSAM RIVER	1441	6254	152	625	93	411	1080	4671	0.065	0.814	103
106	RUSSIAN RIVER	8	35	1	4	0	0	2	8	0.000	0.250	106
107	SALMON RIVER	206	851	57	216	1	4	251	1039	0.005	1.223	107
	BIGTREE CR.											
109	SAN JUAN RIVER	67	282	24	95	0	0	79	346	0.000	1.179	109
	CLAPP,FLEET,GRANITE,											
112	SARITA RIVER	44	190	14	57	0	0	41	181	0.000	0.932	112
115	SOMASS RIVER	513	2186	86	352	100	418	408	1752	0.195	0.990	115
	CHERRY CR.											
117	SOOKE RIVER	96	420	25	106	27	118	112	495	0.281	1.448	117
118	SPROAT RIVER	361	1570	64	271	60	261	255	1097	0.166	0.873	118
120	STAMP RIVER	2237	9316	366	1460	329	1295	1415	5835	0.147	0.780	120
122	SUCWOA RIVER	14	54	4	14	0	0	26	105	0.000	1.857	122
123	TAHSIS RIVER	33	137	9	36	0	0	26	109	0.000	0.788	123
124	TAHSISH RIVER	5	22	2	8	0	0	11	48	0.000	2.200	124
125	TAYLOR RIVER	4	17	3	13	0	0	1	4	0.000	0.250	125
126	TLUPANA RIVER	3	12	3	12	0	0	0	0	0.000	0.000	126
127	TOQUART RIVER	5	21	4	16	0	0	5	20	0.000	1.000	127
129	TRENT RIVER	7	30	4	17	0	0	3	13	0.000	0.429	129
130	TSABLE RIVER	7	30	5	21	0	0	6	26	0.000	0.857	130
131	TSITIKA RIVER	11	34	7	19	0	0	24	106	0.000	2.182	131
132	TSOLUM RIVER	5	21	2	8	0	0	0	0	0.000	0.000	132
133	TSOWWIN RIVER	3	10	2	6	0	0	11	39	0.000	3.667	133
137	WAKEMAN RIVER	7	27	4	14	0	0	11	35	0.000	1.571	137
140	WAUKWAAS CREEK	33	145	15	65	0	0	44	194	0.000	1.333	140
141	WHITE RIVER	30	99	13	40	0	0	60	234	0.000	2.000	141
144	WOSS RIVER	28	123	4	17	0	0	19	84	0.000	0.679	144
145	ZEBALLOS RIVER	22	93	7	27	0	0	8	35	0.000	0.364	145
151	CAMBELL/QUINSAM RIVE	50	221	1	4	0	0	12	53	0.000	0.240	151
153	STAMP/SOMASS	52	213	9	34	5	21	64	262	0.096	1.327	153
155	KWALATE CREEK	1	4	1	4	0	0	0	0	0.000	0.000	155

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
156	MILLSTONE RIVER	46	203	3	13	11	48	27	119	0.239	0.826	156
157	KAUWINCH RIVER	1	4	1	4	0	0	1	4	0.000	1.000	157
	AREA TOTALS:	14033	59484	2543	10259	1245	5220	11440	48314	0.089	0.904	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Lower Mainland)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
165	ALOUETTE RIVER SOUTH ALOUETTE R.	2129	8575	208	834	115	463	520	2098	0.054	0.298	165
167	ASHLU CREEK	23	92	13	52	1	4	21	84	0.043	0.957	167
168	BEAR RIVER	9	36	2	8	0	0	0	0	0.000	0.000	168
171	BIRKENHEAD RIVER	3	12	2	8	0	0	0	0	0.000	0.000	171
172	BREM RIVER	5	11	2	5	0	0	4	7	0.000	0.800	172
173	BRITTAIN RIVER	1	4	1	4	0	0	0	0	0.000	0.000	173
174	BRUNETTE RIVER	56	225	5	20	3	12	9	36	0.054	0.214	174
175	CAPILANO RIVER BROTHERS CR.	771	3108	118	475	21	84	159	640	0.027	0.233	175
176	CHAPMAN CREEK	56	225	12	48	6	24	28	112	0.107	0.607	176
177	CHEAKAMUS RIVER CHEEKYE R.	456	1830	120	478	2	8	231	929	0.004	0.511	177
178	CHEHALIS RIVER STATLU CR.	1177	4714	249	987	38	153	159	636	0.032	0.167	178
179	CHILLIWACK RIVER VEDDER R.	13623	54171	1374	5435	586	2321	5411	21464	0.043	0.440	179
180	COGBURN CREEK	2	8	1	4	0	0	0	0	0.000	0.000	180
181	COQUIHALLA RIVER	237	916	83	311	3	12	125	488	0.013	0.540	181
182	COQUITLAM RIVER	143	576	28	112	0	0	87	350	0.000	0.608	182
184	DAKOTA CREEK	10	40	1	4	0	0	4	16	0.000	0.400	184
185	DESERTED RIVER	2	8	1	4	0	0	0	0	0.000	0.000	185
186	ELAHO CREEK	6	24	3	12	0	0	0	0	0.000	0.000	186
188	FRASER RIVER	4393	17518	342	1336	124	488	94	373	0.028	0.050	188
190	GRAY CREEK	4	16	2	8	1	4	0	0	0.250	0.250	190
191	HARRISON RIVER	48	193	8	32	0	0	1	4	0.000	0.021	191
193	HOMATHKO RIVER	4	7	2	3	0	0	1	1	0.000	0.250	193
196	INDIAN RIVER	4	16	2	8	0	0	2	8	0.000	0.500	196
197	KANAKA CREEK	195	785	32	127	9	36	48	192	0.046	0.292	197
199	LANG CREEK WOLFSOHN CR.	35	141	4	16	0	0	14	56	0.000	0.400	199
201	LILLOOET RIVER	24	96	7	28	0	0	2	8	0.000	0.083	201
202	LITTLE CAMPBELL RIVE	543	2175	62	246	35	136	112	436	0.064	0.271	202
205	LYNN CREEK	18	72	5	20	0	0	1	4	0.000	0.056	205
206	MCNAB CREEK	3	12	2	8	0	0	2	8	0.000	0.667	206
207	MAMQUAM RIVER	40	161	16	64	0	0	12	48	0.000	0.300	207
210	MORRIS CREEK	15	59	3	11	3	12	2	8	0.200	0.333	210
211	NAHATLATCH RIVER	33	122	15	52	0	0	15	58	0.000	0.455	211
213	NICOMEKL RIVER	269	1084	38	153	11	44	43	173	0.041	0.201	213
214	NICOMEN SLOUGH DEWDNEY SLOUGH	9	36	4	16	1	4	0	0	0.111	0.111	214
215	NORRISH CREEK SUICIDE CR.	17	68	3	12	0	0	1	4	0.000	0.059	215
216	NORTH ALOUETTE RIVER	56	225	7	28	1	4	6	24	0.018	0.125	216
219	PITT RIVER	45	181	8	32	1	4	2	8	0.022	0.067	219
222	RAINY RIVER	62	249	6	24	4	16	19	76	0.065	0.371	222
223	ROBERTS CREEK	16	64	2	8	1	4	4	16	0.063	0.313	223
225	SALMON RIVER	47	189	7	28	1	4	25	100	0.021	0.553	225
226	SECHELT CREEK	2	8	1	4	0	0	0	0	0.000	0.000	226
227	SERPENTINE RIVER	32	129	3	12	0	0	4	16	0.000	0.125	227
228	SEYMOUR RIVER	1485	5982	172	688	20	80	363	1461	0.013	0.258	228
230	SILVERHOPE CREEK SILVER CR.	101	399	31	118	1	4	71	275	0.010	0.713	230
231	SKWAWKA RIVER	1	4	1	4	0	0	0	0	0.000	0.000	231

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Lower Mainland)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
235	SQUAMISH RIVER	423	1656	135	525	3	12	103	401	0.007	0.251	235
236	STAVE RIVER	54	216	15	59	1	4	1	4	0.019	0.037	236
237	STAWAMUS RIVER	2	8	1	4	0	0	0	0	0.000	0.000	237
238	SUMAS RIVER	95	377	14	53	7	28	35	119	0.074	0.442	238
243	TZOONIE RIVER	2	8	1	4	0	0	0	0	0.000	0.000	243
244	VANCOUVER RIVER	8	32	2	8	0	0	4	16	0.000	0.500	244
246	WEAVER CREEK	13	52	5	20	2	8	10	40	0.154	0.923	246
248	WHONOCK CREEK	4	16	3	12	0	0	1	4	0.000	0.250	248
250	WILSON CREEK	1	4	1	4	0	0	0	0	0.000	0.000	250
253	CLAYBURN CREEK	14	56	2	8	0	0	16	64	0.000	1.143	253
254	MCNAIR CREEK	10	40	1	4	0	0	5	20	0.000	0.500	254
	AREA TOTALS:	26836	107031	3188	12588	1001	3973	7777	30885	0.037	0.327	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Thompson-Nicola)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
275	NICOLA RIVER	11	28	4	9	0	0	0	0	0.000	0.000	275
276	SETON RIVER	1	4	1	4	0	0	0	0	0.000	0.000	276
277	STEIN RIVER	1	4	1	4	0	0	1	4	0.000	1.000	277
278	THOMPSON RIVER	3637	11337	745	2393	305	949	939	2814	0.084	0.342	278
279	COLDWATER RIVER	10	40	1	4	1	4	2	8	0.100	0.300	279
	AREA TOTALS:	3660	11413	752	2414	306	953	942	2826	0.084	0.341	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Cariboo)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
300	ATNARKO RIVER	269	823	66	191	36	103	164	413	0.134	0.743	300
301	BELLA COOLA RIVER SNOOTLI CR.	1367	4169	261	790	200	592	735	1927	0.146	0.684	301
303	CHILCOTIN RIVER ALEXIS CR,CHILANKO R	278	958	79	264	44	150	179	629	0.158	0.802	303
304	CHILKO RIVER	15	50	8	25	0	0	3	10	0.000	0.200	304
305	CHUCKWALLA RIVER	97	266	26	62	22	58	100	234	0.227	1.258	305
307	DEAN RIVER	2373	5869	406	994	129	365	3941	9131	0.054	1.715	307
308	KILBELLA RIVER	55	175	15	39	8	15	42	109	0.145	0.909	308
309	KIMSQUIT RIVER	90	316	1	3	0	0	25	87	0.000	0.278	309
311	KWATNA RIVER	6	19	2	5	0	0	2	8	0.000	0.333	311
313	NEKITE RIVER	6	23	2	7	2	7	10	40	0.333	2.000	313
316	QUESNEL RIVER	20	38	1	1	1	1	0	0	0.050	0.050	316
317	SALLOOMT RIVER	4	12	3	9	1	2	0	0	0.250	0.250	317
321	TASEKO RIVER	1	3	1	3	0	0	0	0	0.000	0.000	321
324	CHUCKWALLA/KILBELLA	56	106	15	28	20	38	84	160	0.357	1.857	324
	AREA TOTALS:	4637	12827	886	2421	463	1331	5285	12748	0.100	1.240	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Skeena)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
325	BABINE RIVER	1339	3189	228	508	0	0	1747	3802	0.000	1.305	325
327	BELL IRVING RIVER	1	3	1	3	0	0	4	15	0.000	4.000	327
328	BISH CREEK	10	37	5	18	2	7	25	99	0.200	2.700	328
329	BULKLEY RIVER	3078	9781	536	1598	165	531	2279	7175	0.054	0.794	329
	BOULDER,CHICKEN,TOBO											
330	BULKLEY/MORICE RIVER	185	569	13	34	3	7	217	754	0.016	1.189	330
331	CANOONA RIVER	24	79	7	23	2	7	12	42	0.083	0.583	331
	INDIAN R.											
332	CEDAR CREEK	10	33	6	18	2	4	5	19	0.200	0.700	332
333	CLORE RIVER	10	31	8	27	1	3	19	64	0.100	2.000	333
334	CRANBERRY RIVER	269	826	81	252	23	67	149	536	0.086	0.639	334
335	DALA RIVER	3	11	2	7	1	3	0	0	0.333	0.333	335
336	DAMDOCHAX CREEK	76	152	15	31	3	5	97	184	0.039	1.316	336
	BLACKWATER R.											
339	EXCHAMSIKS RIVER	11	39	4	14	0	0	0	0	0.000	0.000	339
340	EXSTEW RIVER	4	15	2	7	0	0	0	0	0.000	0.000	340
342	GITNADOIX RIVER	32	116	11	37	8	28	46	167	0.250	1.688	342
344	INKLIN RIVER	2	4	2	4	0	0	0	0	0.000	0.000	344
345	ISHKEENICKH RIVER	168	622	42	153	27	99	333	1235	0.161	2.143	345
347	KASIKS RIVER	13	49	4	15	0	0	0	0	0.000	0.000	347
350	KHYEX RIVER	1	3	1	3	1	3	0	0	1.000	1.000	350
351	KILDALA RIVER	6	22	2	7	1	3	1	3	0.167	0.333	351
354	KISPIOX RIVER	1594	3963	312	803	46	131	1010	2483	0.029	0.662	354
	SWEETIN R.											
355	KITEEN RIVER	31	101	16	51	5	19	24	88	0.161	0.935	355
356	KITIMAT RIVER	1582	5780	245	863	186	695	514	1952	0.118	0.442	356
	HIRSCH,LITTLE WEDEEN											
358	KITSEQUECLA RIVER	15	52	6	19	1	1	11	39	0.067	0.800	358
360	KITSUMKALUM RIVER	1281	4649	208	738	108	391	610	2270	0.084	0.560	360
	BEAVER R.,KALUM R.											
362	KITWANGA RIVER	40	131	8	19	0	0	4	7	0.000	0.100	362
363	KLEANZA CREEK	2	4	2	4	0	0	1	3	0.000	0.500	363
364	KLOIYA RIVER	247	938	31	117	8	29	103	392	0.032	0.449	364
365	KLUATANTAN RIVER	2	3	1	1	0	0	1	1	0.000	0.500	365
368	KWINAGEESE RIVER	1	3	1	3	0	0	0	0	0.000	0.000	368
369	KWINAMASS RIVER	8	30	4	15	3	11	59	224	0.375	7.750	369
371	LAKELSE RIVER	972	3543	158	553	48	170	601	2220	0.049	0.668	371
	COLDWATER,WILLIAMS C											
372	MEZIADIN RIVER	38	119	18	56	7	19	10	31	0.184	0.447	372
373	MORICE RIVER	1233	3788	260	770	44	142	819	2269	0.036	0.700	373
375	NAHLIN RIVER	1	3	1	3	0	0	0	0	0.000	0.000	375
376	NAKINA RIVER	27	53	8	15	5	9	109	214	0.185	4.222	376
377	NANIKA RIVER	2	7	1	3	0	0	0	0	0.000	0.000	377
378	NASS RIVER	165	536	52	161	25	82	114	352	0.152	0.842	378
383	SHESLAY RIVER	6	12	2	4	2	3	2	3	0.333	0.667	383
385	SKEENA RIVER	5546	17103	793	2427	467	1394	2022	6302	0.084	0.449	385
	BOULDER,FIDDLER,KWIN											
386	STIKINE RIVER	12	41	8	25	3	11	0	0	0.250	0.250	386
387	SUSKWA RIVER	69	198	30	78	0	0	35	118	0.000	0.507	387
	BEAR R.											
388	SUSTUT RIVER	361	826	72	166	29	63	163	388	0.080	0.532	388
	BEAR R.											
390	TAHLTAN RIVER	73	265	12	40	19	65	51	183	0.260	0.959	390
391	TAKU RIVER	17	40	7	16	4	15	63	147	0.235	3.941	391

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
394	TELKWA RIVER	31	94	14	41	2	7	24	77	0.065	0.839	394
395	TSEAX RIVER	199	665	60	200	17	56	125	423	0.085	0.714	395
396	TUYA RIVER	5	14	3	6	0	0	0	0	0.000	0.000	396
397	WEEWANIE CREEK	1	3	1	3	0	0	0	0	0.000	0.000	397
399	ZYMAGOTITZ RIVER ZIMACOR R.	11	41	2	7	2	7	14	53	0.182	1.455	399
400	ZYMOETZ RIVER COPPER R.	960	2991	184	597	66	229	624	2039	0.069	0.719	400
401	KHUTZE RIVER	10	38	1	3	0	0	1	3	0.000	0.100	401
402	KHUTZEYMATEEN R.	5	20	1	4	0	0	0	0	0.000	0.000	402
403	THORNHILL CREEK	1	3	1	3	1	3	0	0	1.000	1.000	403
404	SHAKES CREEK	1	3	1	3	0	0	12	45	0.000	12.000	404
405	SEASKINNISK CREEK	7	26	3	11	1	3	7	26	0.143	1.143	405
406	TCHITIN RIVER	6	22	3	11	1	3	14	53	0.167	2.500	406
407	KINSKUCH RIVER	4	15	3	11	1	3	6	22	0.250	1.750	407
	AREA TOTALS:	19808	61674	3500	10609	1340	4328	12087	36522	0.068	0.678	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88 (Queen Charlotte Islands)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
425	AIN RIVER	6	22	3	11	0	0	0	0	0.000	0.000	425
429	COPPER CREEK	103	384	25	88	33	121	72	270	0.320	1.019	429
430	DATLAMEN CREEK	2	7	2	7	0	0	0	0	0.000	0.000	430
431	DAVIDSON CREEK	1	3	1	3	0	0	0	0	0.000	0.000	431
432	DEENA CREEK	51	171	15	52	7	24	102	345	0.137	2.137	432
434	HIELLEN RIVER	1	3	1	3	1	3	4	15	1.000	5.000	434
435	HONNA RIVER	68	259	16	61	8	30	37	141	0.118	0.662	435
436	MAMIN RIVER	49	182	14	48	2	7	15	55	0.041	0.347	436
437	MATHERS CREEK	3	11	3	11	0	0	12	45	0.000	4.000	437
438	NADEN RIVER	2	7	1	3	0	0	0	0	0.000	0.000	438
439	PALLANT CREEK MORESBY L.,MOSQUITO	136	507	19	64	10	36	272	1026	0.074	2.074	439
445	TLELL RIVER	125	475	17	63	21	78	105	400	0.168	1.008	445
446	YAKOUN RIVER	605	2188	109	393	113	411	667	2500	0.187	1.289	446
447	HAANS CREEK	4	12	3	8	1	4	3	7	0.250	1.000	447
448	BONANZA CREEK	2	7	1	3	0	0	3	11	0.000	1.500	448
449	TARUNDL CREEK	1	3	1	3	0	0	2	7	0.000	2.000	449
450	SLATECHUCK CREEK	1	3	1	3	0	0	1	3	0.000	1.000	450
451	CHINUKUNDL CREEK MILLER CREEK	2	7	1	3	0	0	0	0	0.000	0.000	451
	AREA TOTALS:	1162	4251	233	827	196	714	1295	4825	0.169	1.283	

Appendix 4 - ANGLER DAYS AND CATCH SUCCESS, 1987-88

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	KEPT REP	KEPT EST	RELEASED REP	RELEASED EST	KEPT/DAY	CATCH/DAY	STR#
555	UNKNOWN STREAMS	471	1421	124	369	23	87	163	392	0.049	0.398	555
	TOTAL FOR ALL AREAS:	70607	258101	11226	39487	4574	16576	38989	136512	0.065	0.617	

Anglers who did not report no. of days fished are not included in this report.

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
1	ADAM RIVER	6	16	4	13	0	0	1	2	0	0	0	0	1
2	AHNUHATI RIVER	19	80	5	22	0	0	24	101	0	0	0	0	2
3	AMOR DE COSMOS RIVER	28	124	11	49	0	0	42	186	1	4	2	9	3
	BEAR R.													
4	APPLE RIVER	1	4	1	4	0	0	0	0	0	0	0	0	4
6	ASH RIVER	39	172	11	48	0	0	64	283	0	0	17	75	6
10	BIG QUALICUM RIVER	843	3640	140	586	2	9	175	753	107	468	196	845	10
	QUALICUM R.													
11	BLACK CREEK	1	4	1	4	0	0	0	0	0	0	0	0	11
12	BROTHER CREEK	1	4	1	4	0	0	0	0	0	0	0	0	12
13	BROWNS RIVER	7	31	2	9	0	0	2	9	1	4	1	4	13
14	BURMAN RIVER	15	51	7	26	0	0	10	44	0	0	0	0	14
15	CAMPBELL RIVER	690	2806	131	494	0	0	193	826	18	73	131	559	15
16	CAYCUSE RIVER	8	35	4	17	0	0	14	62	0	0	0	0	16
17	CAYEGHLE CREEK	19	84	3	13	0	0	14	62	0	0	0	0	17
18	CHASE RIVER	30	133	1	4	0	0	0	0	1	4	0	0	18
19	CHEMAINUS RIVER	51	223	16	69	0	0	17	74	2	9	1	4	19
20	CHINA CREEK	74	319	17	70	0	0	108	469	1	4	3	13	20
21	CLUXEWE RIVER	68	291	19	82	0	0	59	261	2	9	19	62	21
22	COLEMAN CREEK	1	4	1	4	0	0	1	4	0	0	0	0	22
23	COLONIAL CREEK	1	4	1	4	0	0	0	0	0	0	0	0	23
24	CONUMA RIVER	15	63	7	29	0	0	23	97	0	0	0	0	24
25	COUS CREEK	4	18	3	13	0	0	6	27	0	0	0	0	25
26	COWICHAN RIVER	2065	8939	266	1110	2	9	1607	6992	165	711	333	1439	26
	COTTONWOOD,SKUTZ FAL													
29	CYPRE RIVER	1	4	1	4	0	0	0	0	0	0	0	0	29
30	DAVIE RIVER	5	22	2	9	0	0	0	0	0	0	0	0	30
31	DE MANIEL CREEK	2	9	1	4	0	0	4	18	3	13	0	0	31
34	ENGLISHMAN RIVER	620	2532	116	492	0	0	288	1169	67	279	168	640	34
35	ESPINOSA CREEK	1	4	1	4	0	0	0	0	0	0	0	0	35
36	EVE RIVER	42	160	15	55	0	0	54	208	0	0	5	20	36
38	FRANKLIN RIVER	2	8	2	8	0	0	0	0	0	0	0	0	38
39	FRENCH CREEK	5	22	2	9	0	0	2	9	0	0	0	0	39
40	GLENDALE CREEK	7	31	2	9	0	0	5	22	0	0	0	0	40
41	GOLD RIVER	675	2718	166	625	1	4	1505	6002	5	22	13	49	41
	UCONA R.													
42	GOLDSTREAM RIVER	8	35	5	22	0	0	2	9	0	0	0	0	42
43	GOODSPEED RIVER	4	18	2	9	0	0	17	75	0	0	0	0	43
44	GORDON RIVER	2	7	2	7	0	0	6	21	0	0	0	0	44
45	HARRIS CREEK	70	306	21	91	0	0	63	271	1	4	6	27	45
48	HEBER RIVER	35	103	16	42	0	0	46	171	0	0	0	0	48
49	HEMMINGSEN CREEK	30	133	1	4	0	0	5	22	0	0	3	13	49
55	KAIPIT CREEK	7	31	3	13	0	0	5	22	0	0	0	0	55
56	KAKWEIKEN RIVER	6	26	3	13	0	0	1	4	0	0	0	0	56
57	KAOUK RIVER	4	18	1	4	0	0	2	9	0	0	0	0	57
	ROWLAND CR.													
59	KEOGH RIVER	172	747	47	202	0	0	178	780	19	83	56	245	59
62	KIRBY CREEK	2	9	1	4	0	0	0	0	0	0	0	0	62
64	KLANAWA RIVER	3	13	2	9	0	0	1	4	0	0	0	0	64

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
67	KOKISH RIVER	29	128	7	31	0	0	42	186	0	0	2	9	67
68	KOKSILAH RIVER	34	150	9	40	0	0	3	13	0	0	0	0	68
71	LEINER RIVER	31	121	5	21	0	0	20	71	0	0	0	0	71
72	LITTLE RIVER	2	4	1	2	0	0	0	0	0	0	0	0	72
73	LITTLE QUALICUM RIVE	1028	4420	199	829	3	13	351	1512	107	453	183	783	73
74	LITTLE ZEBALLOS RIVE	3	12	2	7	0	0	9	34	0	0	0	0	74
76	MCCURDY CREEK	4	18	1	4	0	0	3	13	0	0	0	0	76
78	MAGGIE RIVER DRAW CR.	5	22	3	13	0	0	1	4	0	0	0	0	78
79	MAHATTA RIVER	10	43	6	26	0	0	18	78	0	0	0	0	79
81	MARBLE RIVER AMAZON R.,LINK CR.	56	173	18	57	0	0	20	73	0	0	0	0	81
82	MEGIN RIVER	5	21	3	13	0	0	3	12	0	0	0	0	82
86	MOHUN CREEK TROUT CR.	3	11	3	11	0	0	0	0	0	0	0	0	86
88	MUCHALAT RIVER	1	4	1	4	0	0	0	0	0	0	0	0	88
89	MUIR CREEK	5	22	2	9	0	0	6	27	1	4	1	4	89
90	NAHMINT RIVER	7	31	6	27	0	0	3	13	0	0	0	0	90
91	NAHWITTI RIVER	5	22	3	13	0	0	2	9	0	0	0	0	91
92	NANAIMO RIVER	827	3611	107	449	0	0	338	1490	33	145	51	225	92
94	NIMPKISH RIVER	208	906	43	183	0	0	154	669	0	0	0	0	94
95	NITINAT RIVER LITTLE NITINAT R.	28	123	8	35	0	0	11	47	0	0	0	0	95
97	OYSTER RIVER	230	993	72	302	1	4	95	416	1	4	6	25	97
100	PERRY RIVER	5	22	4	17	0	0	8	35	0	0	0	0	100
101	PUNTLEDGE RIVER COURTENAY R.	103	446	25	105	0	0	55	241	0	0	40	173	101
102	QUATSE RIVER	375	1638	58	252	0	0	135	590	75	327	379	1630	102
103	QUINSAM RIVER	1441	6257	152	629	2	9	754	3281	91	402	326	1393	103
106	RUSSIAN RIVER	8	35	1	4	0	0	2	9	0	0	0	0	106
107	SALMON RIVER BIGTREE CR.	206	855	57	219	0	0	244	1016	1	4	7	26	107
109	SAN JUAN RIVER CLAPP,FLEET,GRANITE,	67	286	24	99	0	0	78	342	0	0	1	4	109
112	SARITA RIVER	44	191	14	59	0	0	41	181	0	0	0	0	112
115	SOMASS RIVER CHERRY CR.	513	2189	86	355	4	8	134	560	96	413	274	1195	115
117	SOOKE RIVER	96	422	25	108	0	0	15	66	27	119	97	429	117
118	SPROAT RIVER	361	1573	64	274	0	0	81	354	60	261	174	745	118
120	STAMP RIVER	2237	9320	366	1466	12	47	731	3003	317	1251	684	2838	120
122	SUCWOA RIVER	14	56	4	16	0	0	26	106	0	0	0	0	122
123	TAHSIS RIVER	33	139	9	38	0	0	26	111	0	0	0	0	123
124	TAHSISH RIVER	5	22	2	9	0	0	11	49	0	0	0	0	124
125	TAYLOR RIVER	4	18	3	13	0	0	1	4	0	0	0	0	125
126	TLUPANA RIVER	3	13	3	13	0	0	0	0	0	0	0	0	126
127	TOQUART RIVER	5	21	4	17	0	0	5	21	0	0	0	0	127
129	TRENT RIVER	7	31	4	18	0	0	2	9	0	0	1	4	129
130	TSABLE RIVER	7	31	5	22	0	0	6	27	0	0	0	0	130
131	TSITIKA RIVER	11	36	7	21	0	0	24	106	0	0	0	0	131
132	TSOLUM RIVER	5	22	2	8	0	0	0	0	0	0	0	0	132

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Vancouver Island)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
133	TSOWWIN RIVER	3	12	2	7	0	0	11	40	0	0	0	0	133
137	WAKEMAN RIVER	7	28	4	15	0	0	11	36	0	0	0	0	137
140	WAUKWAAS CREEK	33	146	15	66	0	0	44	195	0	0	0	0	140
141	WHITE RIVER	30	100	13	43	0	0	53	212	0	0	7	23	141
144	WOSS RIVER	28	124	4	18	0	0	19	84	0	0	0	0	144
145	ZEBALLOS RIVER	22	95	7	28	0	0	8	35	0	0	0	0	145
151	CAMBELL/QUINSAM RIVE	50	221	1	4	0	0	7	31	0	0	5	22	151
153	STAMP/SOMASS	52	216	9	35	0	0	32	134	5	21	32	130	153
155	KWALATE CREEK	1	4	1	4	0	0	0	0	0	0	0	0	155
156	MILLSTONE RIVER	46	203	3	13	0	0	18	80	11	49	9	40	156
157	KAUWINCH RIVER	1	4	1	4	0	0	1	4	0	0	0	0	157
	AREA TOTALS:	14033	59612	2543	10392	27	103	8207	34701	1218	5140	3233	13702	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Lower Mainland) PAGE

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
165	ALOUETTE RIVER SOUTH ALOUETTE R.	2129	8577	208	837	0	0	245	986	115	464	275	1114	165
167	ASHLU CREEK	23	93	13	52	0	0	21	85	1	4	0	0	167
168	BEAR RIVER	9	36	2	8	0	0	0	0	0	0	0	0	168
171	BIRKENHEAD RIVER	3	12	2	8	0	0	0	0	0	0	0	0	171
172	BREM RIVER	5	12	2	6	0	0	4	8	0	0	0	0	172
173	BRITTAIN RIVER	1	4	1	4	0	0	0	0	0	0	0	0	173
174	BRUNETTE RIVER	56	226	5	20	0	0	2	8	3	12	7	28	174
175	CAPILANO RIVER BROTHERS CR.	771	3108	118	476	0	0	112	452	21	85	47	189	175
176	CHAPMAN CREEK	56	226	12	48	3	12	24	97	3	12	4	16	176
177	CHEAKAMUS RIVER CHEEKYE R.	456	1833	120	481	2	8	227	914	0	0	4	16	177
178	CHEHALIS RIVER STATLU CR.	1177	4717	249	991	2	8	103	415	36	145	56	223	178
179	CHILLIWACK RIVER VEDDER R.	13623	54176	1374	5440	49	195	4629	18371	537	2133	782	3096	179
180	COGBURN CREEK	2	8	1	4	0	0	0	0	0	0	0	0	180
181	COQUIHALLA RIVER	237	921	83	317	1	4	92	360	2	8	33	132	181
182	COQUITLAM RIVER	143	576	28	113	0	0	86	347	0	0	1	4	182
184	DAKOTA CREEK	10	40	1	4	0	0	4	16	0	0	0	0	184
185	DESERTED RIVER	2	8	1	4	0	0	0	0	0	0	0	0	185
186	ELAHO CREEK	6	24	3	12	0	0	0	0	0	0	0	0	186
188	FRASER RIVER	4393	17524	342	1343	112	443	87	347	12	48	7	28	188
190	GRAY CREEK	4	16	2	8	0	0	0	0	1	4	0	0	190
191	HARRISON RIVER	48	194	8	32	0	0	1	4	0	0	0	0	191
193	HOMATHKO RIVER	4	8	2	4	0	0	1	2	0	0	0	0	193
196	INDIAN RIVER	4	16	2	8	0	0	2	8	0	0	0	0	196
197	KANAKA CREEK	195	786	32	129	0	0	35	141	9	36	13	52	197
199	LANG CREEK WOLFSOHN CR.	35	141	4	16	0	0	14	56	0	0	0	0	199
201	LILLOOET RIVER	24	97	7	28	0	0	2	8	0	0	0	0	201
202	LITTLE CAMPBELL RIVE	543	2177	62	248	0	0	89	348	35	137	23	89	202
205	LYNN CREEK	18	73	5	20	0	0	1	4	0	0	0	0	205
206	MCNAB CREEK	3	12	2	8	0	0	2	8	0	0	0	0	206
207	MAMQUAM RIVER	40	161	16	65	0	0	12	48	0	0	0	0	207
210	MORRIS CREEK	15	60	3	12	1	4	2	8	2	8	0	0	210
211	NAHATLATCH RIVER	33	126	15	55	0	0	13	51	0	0	2	8	211
213	NICOMEKL RIVER	269	1084	38	153	2	8	33	133	9	36	10	40	213
214	NICOMEN SLOUGH DEWDNEY SLOUGH	9	36	4	16	0	0	0	0	1	4	0	0	214
215	NORRISH CREEK SUICIDE CR.	17	69	3	12	0	0	1	4	0	0	0	0	215
216	NORTH ALOUETTE RIVER	56	226	7	28	0	0	5	20	1	4	1	4	216
219	PITT RIVER	45	181	8	32	0	0	2	8	1	4	0	0	219
222	RAINY RIVER	62	250	6	24	4	16	19	77	0	0	0	0	222
223	ROBERTS CREEK	16	65	2	8	0	0	4	16	1	4	0	0	223
225	SALMON RIVER	47	189	7	28	0	0	25	101	1	4	0	0	225
226	SECHELT CREEK	2	8	1	4	0	0	0	0	0	0	0	0	226

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Lower Mainland)

STR#	STREAM NAME	WILD DAYS FISHED REP	WILD DAYS FISHED EST	WILD NO. ANGLERS REP	WILD NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
227	SERPENTINE RIVER	32	129	3	12	0	0	4	16	0	0	0	0	227
228	SEYMOUR RIVER	1485	5985	172	691	0	0	309	1245	20	81	54	218	228
230	SILVERHOPE CREEK	101	401	31	121	0	0	66	258	1	4	5	20	230
	SILVER CR.													
231	SKWAWKA RIVER	1	4	1	4	0	0	0	0	0	0	0	0	231
235	SQUAMISH RIVER	423	1659	135	530	1	4	103	404	2	8	0	0	235
236	STAVE RIVER	54	217	15	60	0	0	1	4	1	4	0	0	236
237	STAWAMUS RIVER	2	8	1	4	0	0	0	0	0	0	0	0	237
238	SUMAS RIVER	95	379	14	54	2	8	21	81	5	20	14	40	238
243	TZOONIE RIVER	2	8	1	4	0	0	0	0	0	0	0	0	243
244	VANCOUVER RIVER	8	32	2	8	0	0	1	4	0	0	3	12	244
246	WEAVER CREEK	13	52	5	20	0	0	10	40	2	8	0	0	246
248	WHONOCK CREEK	4	17	3	12	0	0	1	4	0	0	0	0	248
250	WILSON CREEK	1	4	1	4	0	0	0	0	0	0	0	0	250
253	CLAYBURN CREEK	14	56	2	8	0	0	16	65	0	0	0	0	253
254	MCNAIR CREEK	10	40	1	4	0	0	5	20	0	0	0	0	254
	AREA TOTALS:	2683	6107087	3188	12642	179	710	6436	25592	822	3277	1341	5329	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Thompson-Nicola)

STR#	STREAM NAME	WILD DAYS FISHED REP	WILD DAYS FISHED EST	WILD NO. ANGLERS REP	WILD NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
275	NICOLA RIVER	11	30	4	11	0	0	0	0	0	0	0	0	275
276	SETON RIVER	1	4	1	4	0	0	0	0	0	0	0	0	276
277	STEIN RIVER	1	4	1	4	0	0	1	4	0	0	0	0	277
278	THOMPSON RIVER	3637	11342	745	2399	295	929	889	2689	10	24	50	130	278
279	COLDWATER RIVER	10	40	1	4	1	4	2	8	0	0	0	0	279
	AREA TOTALS:	3660	11420	752	2422	296	933	892	2701	10	24	50	130	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Cariboo)

STR#	STREAM NAME	WILD: DAYS FISHED REP	WILD: DAYS FISHED EST	WILD: NO. ANGLERS REP	WILD: NO. ANGLERS EST	WILD: KEPT REP	WILD: KEPT EST	WILD: RELEASED REP	WILD: RELEASED EST	HATCHERY: KEPT REP	HATCHERY: KEPT EST	HATCHERY: RELEASED REP	HATCHERY: RELEASED EST	STR#
300	ATNARKO RIVER	269	826	66	196	36	106	163	413	0	0	1	2	300
301	BELLA COOLA RIVER	1367	4173	261	794	194	580	710	1866	6	16	25	65	301
303	SNOOTLI CR. CHILCOTIN RIVER	278	963	79	269	42	146	167	591	2	7	12	42	303
304	ALEXIS CR,CHILANKO R CHILKO RIVER	15	51	8	27	0	0	3	11	0	0	0	0	304
305	CHUCKWALLA RIVER	97	[illegible]	26	63	22	59	94	224	0	0	6	11	305
307	DEAN RIVER	2373	5[illegible]2	406	999	127	367	3896	9048	2	4	45	86	307
308	KILBELLA RIVER	55	177	15	40	8	15	42	110	0	0	0	0	308
309	KIMSQUIT RIVER	90	316	1	4	0	0	25	88	0	0	0	0	309
311	KWATNA RIVER	6	20	2	6	0	0	2	8	0	0	0	0	311
313	NEKITE RIVER	6	24	2	8	2	8	10	40	0	0	0	0	313
316	QUESNEL RIVER	20	38	1	2	1	2	0	0	0	0	0	0	316
317	SALLOOMT RIVER	4	13	3	11	1	3	0	0	0	0	0	0	317
321	TASEKO RIVER	1	4	1	4	0	0	0	0	0	0	0	0	321
324	CHUCKWALLA/KILBELLA	56	107	15	29	20	38	84	160	0	0	0	0	324
	AREA TOTALS:	4637	12851	886	2452	453	1324	5196	12559	10	27	89	206	

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
325	BABINE RIVER	1339	3163	225	512	0	0	1705	3724	0	0	42	80	325
327	BELL IRVING RIVER	1	4	1	4	0	0	4	15	0	0	0	0	327
328	BISH CREEK	10	39	5	19	2	8	25	100	0	0	0	0	328
329	BULKLEY RIVER BOULDER,CHICKEN,TOBO	3078	9785	536	1603	160	519	2215	6996	5	17	64	185	329
330	BULKLEY/MORICE RIVER	185	571	13	37	3	9	217	757	0	0	0	0	330
331	CANOONA RIVER INDIAN R.	24	79	7	24	2	7	12	44	0	0	0	0	331
332	CEDAR CREEK	10	34	6	19	2	6	5	19	0	0	0	0	332
333	CLORE RIVER	10	32	8	29	1	4	19	65	0	0	0	0	333
334	CRANBERRY RIVER	269	832	81	258	22	68	147	537	1	2	2	4	334
335	DALA RIVER	3	11	2	8	1	4	0	0	0	0	0	0	335
336	DAMDOCHAX CREEK BLACKWATER R.	76	153	15	32	3	6	97	185	0	0	0	0	336
339	EXCHAMSIKS RIVER	11	40	4	15	0	0	0	0	0	0	0	0	339
340	EXSTEW RIVER	4	15	2	8	0	0	0	0	0	0	0	0	340
342	GITNADOIX RIVER	32	118	11	39	8	29	46	170	0	0	0	0	342
344	INKLIN RIVER	2	6	2	6	0	0	0	0	0	0	0	0	344
345	ISHKEENICKH RIVER	168	625	42	156	27	101	333	1237	0	0	0	0	345
347	KASIKS RIVER	13	50	4	15	0	0	0	0	0	0	0	0	347
350	KHYEX RIVER	1	4	1	4	1	4	0	0	0	0	0	0	350
351	KILDALA RIVER	6	23	2	8	1	4	1	4	0	0	0	0	351
354	KISPIOX RIVER SWEETIN R.	1594	3969	312	809	44	130	999	2462	2	6	11	27	354
355	KITEEN RIVER	31	105	16	54	5	19	24	90	0	0	0	0	355
356	KITIMAT RIVER HIRSCH,LITTLE WEDEEN	1582	5785	245	868	126	471	397	1517	60	228	117	438	356
358	KITSEQUECLA RIVER	15	53	6	21	1	2	11	41	0	0	0	0	358
360	KITSUMKALUM RIVER BEAVER R.,KALUM R.	1281	4652	208	743	107	391	606	2258	1	4	4	15	360
362	KITWANGA RIVER	40	134	8	22	0	0	4	8	0	0	0	0	362
363	KLEANZA CREEK	2	6	2	6	0	0	1	4	0	0	0	0	363
364	KLOIYA RIVER	247	939	31	119	8	30	103	393	0	0	0	0	364
365	KLUATANTAN RIVER	2	4	1	2	0	0	1	2	0	0	0	0	365
368	KWINAGEESE RIVER	1	4	1	4	0	0	0	0	0	0	0	0	368
369	KWINAMASS RIVER	8	31	4	15	3	11	59	225	0	0	0	0	369
371	LAKELSE RIVER COLDWATER,WILLIAMS C	972	3548	158	558	47	169	598	2211	1	4	3	11	371
372	MEZIADIN RIVER	38	123	18	60	7	21	10	34	0	0	0	0	372
373	MORICE RIVER	1233	3793	260	775	44	147	800	2229	0	0	19	44	373
375	NAHLIN RIVER	1	4	1	4	0	0	0	0	0	0	0	0	375
376	NAKINA RIVER	27	53	8	16	5	10	109	215	0	0	0	0	376
377	NANIKA RIVER	2	8	1	4	0	0	0	0	0	0	0	0	377
378	NASS RIVER	165	540	52	166	25	84	114	354	0	0	0	0	378
383	SHESLAY RIVER	6	13	2	6	2	4	2	4	0	0	0	0	383
385	SKEENA RIVER BOULDER,FIDDLER,KWIN	5546	17107	793	2433	462	1388	1974	6163	5	12	48	144	385
386	STIKINE RIVER	12	42	8	26	3	11	0	0	0	0	0	0	386
387	SUSKWA RIVER	69	201	30	81	0	0	35	120	0	0	0	0	387

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Skeena)

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
388	BEAR R.	361	829	72	169	29	66	163	391	0	0	0	0	388
390	SUSTUT RIVER	73	267	12	42	19	67	51	185	0	0	0	0	390
391	BEAR R.	17	41	7	17	4	15	63	148	0	0	0	0	391
394	TAHLTAN RIVER	31	97	14	44	2	7	19	58	0	0	5	22	394
395	TAKU RIVER	199	670	60	205	17	58	125	424	0	0	0	0	395
396	TELKWA RIVER	5	15	3	8	0	0	0	0	0	0	0	0	396
397	TSEAX RIVER	1	4	1	4	0	0	0	0	0	0	0	0	397
399	TUYA RIVER	11	42	2	8	2	8	14	53	0	0	0	0	399
400	WEEWANIE CREEK	960	2995	184	602	66	234	622	2039	0	0	2	4	400
401	ZYMAGOTITZ RIVER	10	38	1	4	0	0	1	4	0	0	0	0	401
402	ZIMACOR R.	5	20	1	4	0	0	0	0	0	0	0	0	402
403	ZYMOETZ RIVER	1	4	1	4	1	4	0	0	0	0	0	0	403
404	COPPER R.	1	4	1	4	0	0	12	46	0	0	0	0	404
405	KHUTZE RIVER	7	27	3	11	1	4	7	27	0	0	0	0	405
406	KHUTZEYMATEEN R.	6	23	3	11	1	4	14	53	0	0	0	0	406
407	THORNHILL CREEK	4	15	3	11	1	4	6	23	0	0	0	0	407
	SHAKES CREEK													
	SEASKINNISK CREEK													
	TCHITIN RIVER													
	KINSKUCH RIVER													
	AREA TOTALS:	19808	61789	3500	10736	1265	4128	11770	35634	75	273	317	974	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 (Queen Charlotte Islands) PAGE 10

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
425	AIN RIVER	6	23	3	11	0	0	0	0	0	0	0	0	425
429	COPPER CREEK	103	388	25	92	33	122	72	273	0	0	0	0	429
430	DATLAMEN CREEK	2	8	2	8	0	0	0	0	0	0	0	0	430
431	DAVIDSON CREEK	1	4	1	4	0	0	0	0	0	0	0	0	431
432	DEENA CREEK	51	173	15	55	7	25	102	346	0	0	0	0	432
434	HIELLEN RIVER	1	4	1	4	1	4	4	15	0	0	0	0	434
435	HONNA RIVER	68	259	16	61	8	31	37	141	0	0	0	0	435
436	MAMIN RIVER	49	185	14	51	2	8	15	57	0	0	0	0	436
437	MATHERS CREEK	3	11	3	11	0	0	12	46	0	0	0	0	437
438	NADEN RIVER	2	8	1	4	0	0	0	0	0	0	0	0	438
439	PALLANT CREEK MORESBY L.,MOSQUITO	136	510	19	66	10	38	272	1028	0	0	0	0	439
445	TLELL RIVER	125	476	17	64	21	79	105	400	0	0	0	0	445
446	YAKOUN RIVER	605	2193	109	398	113	415	666	2502	0	0	1	2	446
447	HAANS CREEK	4	15	3	10	1	4	3	8	0	0	0	0	447
448	BONANZA CREEK	2	8	1	4	0	0	3	11	0	0	0	0	448
449	TARUNDL CREEK	1	4	1	4	0	0	2	8	0	0	0	0	449
450	SLATECHUCK CREEK	1	4	1	4	0	0	1	4	0	0	0	0	450
451	CHINUKUNDL CREEK MILLER CREEK	2	8	1	4	0	0	0	0	0	0	0	0	451
	AREA TOTALS:	1162	4281	233	855	196	726	1294	4839	0	0	1	2	

Appendix 5 - ANGLER DAYS AND CATCH SUCCESS - WILD AND HATCHERY, 1987-88 PAGE 11

STR#	STREAM NAME	DAYS FISHED REP	DAYS FISHED EST	NO. ANGLERS REP	NO. ANGLERS EST	WILD KEPT REP	WILD KEPT EST	WILD RELEASED REP	WILD RELEASED EST	HATCHERY KEPT REP	HATCHERY KEPT EST	HATCHERY RELEASED REP	HATCHERY RELEASED EST	STR#
555	UNKNOWN STREAMS	471	1425	124	374	18	48	145	350	5	12	18	45	555
	TOTAL FOR ALL AREAS:	70607	258465	11226	39873	2434	7972	33940	116376	2140	8753	5049	20388	

Anglers who did not report no. of days fished are not included in this report.

Appendix 6 - ACTIVE ANGLERS IN EACH RESIDENT AREA ACCORDING TO THE NUMBER OF STEELHEAD KEPT

RESA		CATCH CLASS 0	1 - 5	6 - 10	11 - 20	21 - 30	31 - 40	UNKNOWN	TOTAL
1	REP	497	265	62	2	0	0	0	826
	EST	2198	1172	274	9	0	0	0	3653
	%	60.2	32.1	7.5	0.2	0.0	0.0	0.0	
2	REP	1523	556	34	2	0	0	0	2115
	EST	6150	2245	137	8	0	0	0	8540
	%	72.0	26.3	1.6	0.1	0.0	0.0	0.0	
3	REP	165	91	0	0	0	0	0	256
	EST	493	272	0	0	0	0	0	765
	%	64.5	35.5	0.0	0.0	0.0	0.0	0.0	
4	REP	43	24	0	0	0	0	0	67
	EST	127	71	0	0	0	0	0	198
	%	64.2	35.8	0.0	0.0	0.0	0.0	0.0	
5	REP	122	107	3	0	0	0	0	232
	EST	429	376	11	0	0	0	0	816
	%	52.6	46.1	1.3	0.0	0.0	0.0	0.0	
6	REP	539	435	26	0	0	0	0	1000
	EST	2057	1660	99	0	0	0	0	3816
	%	53.9	43.5	2.6	0.0	0.0	0.0	0.0	
7	REP	229	134	0	0	0	0	0	363
	EST	789	462	0	0	0	0	0	1251
	%	63.1	36.9	0.0	0.0	0.0	0.0	0.0	
8	REP	107	65	0	0	0	0	0	172
	EST	344	209	0	0	0	0	0	553
	%	62.2	37.8	0.0	0.0	0.0	0.0	0.0	
9	REP	310	176	2	0	0	0	0	488
	EST	612	347	4	0	0	0	0	963
	%	63.5	36.1	0.4	0.0	0.0	0.0	0.0	
0	REP	871	242	5	3	0	0	0	1121
	EST	1666	463	10	6	0	0	0	2145
	%	77.7	21.6	0.4	0.3	0.0	0.0	0.0	
TOTAL	REP	4406	2095	132	7	0	0	0	6640
	EST	14865	7277	535	23	0	0	0	22700
	%	66.4	31.6	2.0	0.1	0.0	0.0	0.0	

Appendix 7 - ACTIVE ANGLERS IN EACH RESIDENT AREA ACCORDING TO THE NUMBER OF DAYS FISHED

RESA		DAYS FISHED CLASS 1 - 5	6 - 10	11 - 30	31 - OV	UNKNOWN	TOTAL
1	REP	291	178	248	102	7	826
	EST	1287	787	1097	451	31	3653
	%	35.2	21.5	30.0	12.3	0.8	
2	REP	811	463	573	234	34	2115
	EST	3275	1870	2314	945	137	8541
	%	38.3	21.9	27.1	11.1	1.6	
3	REP	160	57	31	4	4	256
	EST	479	170	93	12	12	766
	%	62.5	22.3	12.1	1.6	1.6	
4	REP	49	11	7	0	0	67
	EST	145	33	21	0	0	199
	%	73.1	16.4	10.4	0.0	0.0	
5	REP	145	47	32	7	1	232
	EST	510	165	113	25	4	817
	%	62.5	20.3	13.8	3.0	0.4	
6	REP	461	179	254	77	29	1000
	EST	1759	683	969	294	111	3816
	%	46.1	17.9	25.4	7.7	2.9	
7	REP	244	80	31	0	8	363
	EST	841	276	107	0	28	1252
	%	67.2	22.0	8.5	0.0	2.2	
8	REP	119	39	13	0	1	172
	EST	383	125	42	0	3	553
	%	69.2	22.7	7.6	0.0	0.6	
9	REP	280	146	55	1	6	488
	EST	552	288	109	2	12	963
	%	57.4	29.9	11.3	0.2	1.2	
0	REP	434	499	159	20	9	1121
	EST	830	955	304	38	17	2144
	%	38.7	44.5	14.2	1.8	0.8	
TOTAL	REP	2994	1699	1403	445	99	6640
	EST	10061	5352	5169	1767	355	22704
	%	45.1	25.6	21.1	6.7	1.5	

Appendix 8. Steelhead licencees, active and successful anglers, catch and angling effort (1970-71 to 1987-88).

Year	Licencees	Active Anglers	Successful Anglers (%)	Total Catch	Days Fished	Catch/ Successful Angler	Days Fished/ Active Angler	Catch/ Angler Day
70-71	43,750	23,533	8,131(35.2)	53,858	232,664	6.6	9.9	0.231
71-72*	26,253	18,270	7,934(44.5)	61,428	184,978	7.7	10.1	0.332
72-73	28,992	19,489	8,165(42.7)	61,452	203,393	7.5	10.4	0.302
73-74	31,315	20,291	8,282(41.1)	58,695	208,105	7.1	10.3	0.282
74-75*	24,399	16,469	7,296(46.5)	51,652	196,751	7.1	11.9	0.263
75-76	29,594	20,265	8,770(45.8)	58,036	219,797	6.6	10.8	0.264
76-77	25,539	18,356	6,998(40.3)	40,618	186,381	5.8	10.2	0.218
77-78	25,406	17,143	7,038(43.2)	45,201	174,721	6.4	10.2	0.259
78-79	24,600	15,788	6,746(44.2)	39,448	159,363	5.8	10.1	0.265
79-80	25,095	14,755	6,384(45.0)	39,569	134,569	6.2	9.1	0.314
80-81	22,276	12,894	6,388(50.7)	50,924	131,886	8.0	10.2	0.406
81-82	21,741	12,970	6,175(48.0)	57,704	126,145	9.3	9.7	0.463
82-83*	20,856	14,475	7,686(54.3)	74,109	148,892	9.6	10.3	0.517
83-84	20,576	14,918	8,547(57.7)	98,622	173,432	11.5	11.6	0.566
84-85	23,236	17,567	10,581(61.6)	147,838	207,370	14.0	11.8	0.730
85-86	25,619	19,397	11,150(58.7)	145,416	215,313	13.0	11.1	0.682
86-87	32,721	24,371	14,560(61.3)	188,417	279,505	12.9	11.5	0.707
87-88*	31,263	22,698	13,192(59.7)	153,489	258,101	11.6	11.4	0.617

* Increase in steelhead licence fees.

Appendix 9. Estimated annual steelhead catch (1970-71 to 1987-88).

	Wild		Hatchery		Combined Catch		
Year	Kept	Released	Kept	Released	Kept	Released	Total
70-71					33,919	19,939	53,858
71-72					36,704	24,724	61,428
72-73					35,782	25,670	61,452
73-74					32,482	26,213	58,695
74-75					27,807	23,845	51,652
75-76					31,490	26,546	58,036
76-77					20,168	20,450	40,618
77-78					18,246	27,093	45,201
78-79					14,700	24,748	39,448
79-80					12,663	26,906	39,569
80-81					10,941	39,983	50,924
81-82	8,604	43,139	1,361	4,600	9,965	47,739	57,704
82-83	10,849	54,259	2,634	6,367	13,483	60,626	74,109
83-84	10,578	68,926	4,506	13,612	15,084	83,538	98,662
84-85	11,648	107,301	7,261	21,628	18,909	128,929	147,838
85-86	10,978	95,745	8,442	30,251	19,420	125,996	145,416
86-87	11,554	126,791	13,223	36,849	24,777	163,640	188,417
87-88	7,972	116,376	8,753	20,388	16,725	136,764	153,489